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PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

Vol. LXXIX. No. 25 NEW YORK AND CHICAGO, DECEMBER 18, 1924 { Per annum, $4.00 / Per Copy, 10 cents

JANUARY FROM ABROAD

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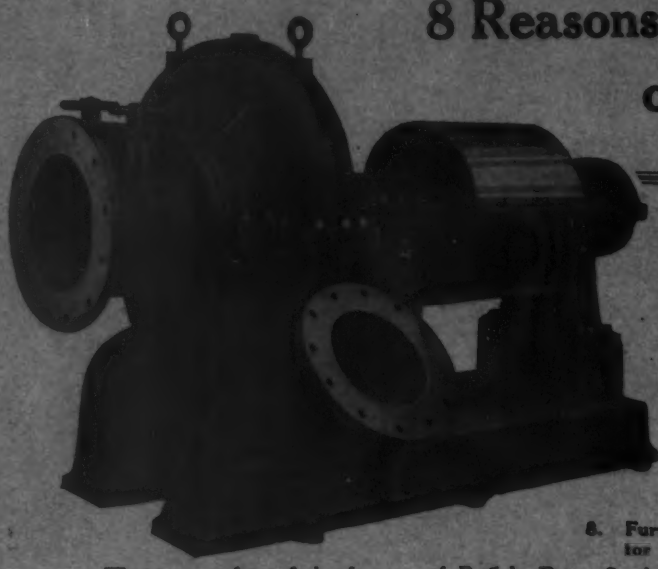
8 Reasons for the popularity of "Buffalo" pumps!



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4. Pump proportioned to clean itself, especially at high consistencies.
5. All parts accessible without disturbing piping.
6. Water cooled gland and plate type of thrust bearing (water jacketed).
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8. Furnished for belt or motor drive.

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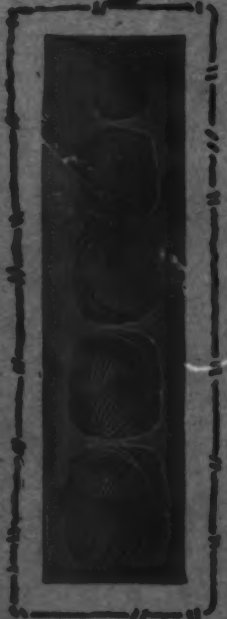

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61 Poplar Street Brooklyn, N. Y.

Cameron Machine Co.,
61 Poplar Street, Brooklyn, N. Y.

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Address _____

PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-THIRD YEAR

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., INC.

LESLIE R. PALME' PRESIDENT — GEO. S. MACDONALD VICE-PRESIDENT & TREAS — F. K. HOPPIE SECRETARY

10 EAST 39TH ST. N.Y. U. S. A

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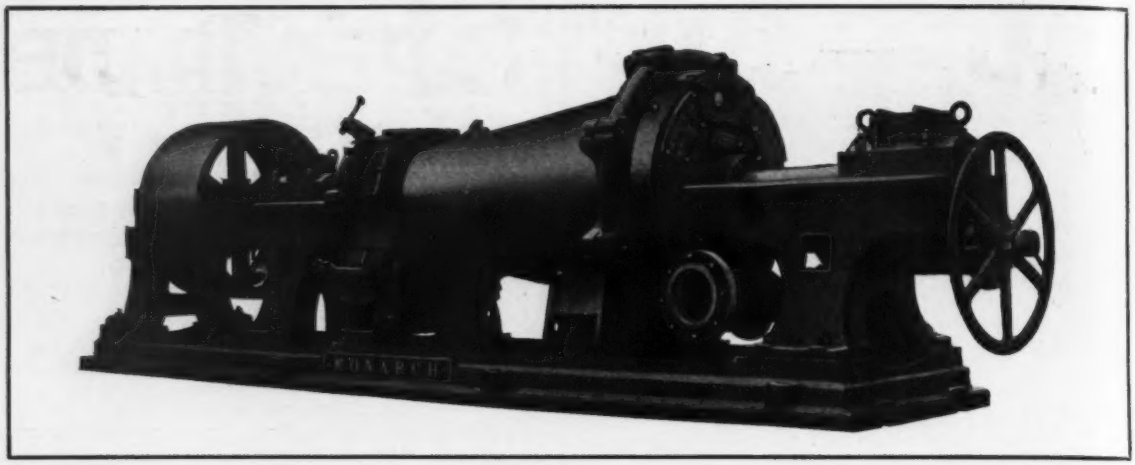

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The demands on us for Jordan engines suited to particular and peculiar conditions has led us into the design of many special Jordans with all manner of special equipment so that, today, we offer six different sizes of Jordans in two general types, besides many special machines. All of our machines may be driven by belt or by motor direct connected.

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The Precision Jordan, with its fine bearings and thousandth of an inch plug adjustment, is the finest machine of its kind and is a distinct Noble & Wood achievement.

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From the small laboratory Jordan to the largest commercial size no detail has been omitted to make the service given by our Jordans the most efficient, and the operation the easiest.

Of course, we have an axe to grind—we want to sell you Jordan engines. But that does not stand in the way of our giving you a fair and unbiased opinion based on our experience when you put your problems before us. The policy of this company is fairness—and—more value for your money than found in any other machinery.

The Noble & Wood Machine Co., **HOOSICK FALLS, N. Y., U. S. A.**

Canadian Builders: **PORT ARTHUR SHIPBUILDING CO., Ltd., Port Arthur, Ont.**

ESTABLISHED IN 1872

PAPER TRADE JOURNAL

Vol. LXXIX. No. 25 NEW YORK AND CHICAGO Thursday, December 18, 1924

COST ASSOCIATION HAS SUCCESSFUL CONVENTION

Three Days' Session Was Held at Commodore Hotel Last Week with a Banquet on Thursday Evening—John E. Hyde of the S. D. Warren Co. Elected President for the Ensuing Year—Program Included Discussions of Raw Materials, Labor Problems and Steam and White Water Losses—Closing Session Was Devoted to a Consideration of Statistics

A very successful convention was held last week at the Commodore Hotel by the Cost Association of the Paper Industry.

The conference started at 10 a. m. Wednesday morning with an address by President James A. Reilly.

The program was carefully designed with a view to covering the most important problems with which the accountants of the pulp and paper industry have to deal. As Mr. Reilly pointed out the pulp and paper industry is one in which the investments in "Fixed Assets" must be carefully watched, in view of the large amounts which must be invested in such assets, before pulp or paper can be made. It is very necessary, therefore, that the overhead expenses shall be properly distributed to the products, necessitating a careful classification of these assets.

L. H. Olson, vice-president of the American Appraisal Company, gave an excellent address on this subject, which is printed elsewhere. Following the address, a number of questions were asked and answered by Mr. Olson, indicating the interest which those present took in the subject. Besides distributing a number of forms, Mr. Olson exhibited a number of charts, which proved to be of great interest to those present.

Discuss Raw Materials

The afternoon session on Wednesday was devoted to a discussion of "Raw Materials" and their treatment for cost purposes. The first speaker was A. W. Astley, Chemical Paper Manufacturing Company, who spoke on the subject of "Rags"; he was followed by Miss Helen U. Kiely, Chief Chemist of the American Writing Paper Company, Holyoke, Mass., who spoke on "Rags, Woodpulp and Waste Papers." Both of these speakers dealt exhaustively with the subject, and were constantly asked for detailed information regarding statements made.

Miss Kiely recommended that all cost equivafents be checked every three months if any reliability is to be placed on their values. She stated that "it is only by repeated checks upon the figures the cost man is using, that any advance can be made. The cost man should be thoroughly acquainted with manufacturing to be able to see the chances for avoiding waste and reducing costs, as the small margin of profit that is realized on the average grades of paper does not permit of leaks and preventable wastages." Another recommendation she made was that "the exact number of pounds of sulphite to be added to the beater should be stated in all furnishes, instead of saying, 'balance sulphite.'" She made the point that in all probability if this were done, more care would be taken with the rag furnish, so that not more than the specified amount of sulphite would have to be added.

These speakers were followed by S. F. Fannon, Director of Public Service, Sherman Service, Inc., his subject being "Measuring Men." He made the point that men should be measured by their accomplishments and character rather than by any other standards, and urged upon manufacturers the importance of studying the human element entering into their manufacturing operations as carefully as they study the machinery element. He said that it was no use to spend $100 000 in installing up-to-date machinery unless a careful selection of the right kind of men to use the machinery was made, and following this, the men should be studied as carefully as the machine, to see that they were functioning properly and doing their share equally with the machine, to produce the best results Mr. Fannon is a fluent speaker, and his address was thoroughly well received by all present.

Labor Problems Considered

Thursday morning was devoted principally to a discussion of "Labor Problem," participated in by J. P. Jordan, Industrial Engineer, New York City, and Adam Wilkinson, Labor Commissioner of the American Writing Paper Company. These speeches will be reported later, as will that given by Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, whose subject was "The Value of Organized Effort." Unfortunately, E. B. Gray, assistant auditor of the S. D. Warren Company, was unable to be present at the afternoon session, his place being taken by J. Austin Smith, who spoke on the subject of "How Long Will Your Business Live?"

Mr. Smith made an eloquent plea for co-operation in industries, for the collection of important data enabling each industry to ascertain definitely and accurately, as well as the individual concerns of the industry, which way it was headed. He pointed out the prime necessity for such co-operation at a time when undoubtedly competition was increasing and efficiency at a premium. Following his address, the business session was held.

Thomas J. Burke, secretary-treasurer of the Association, rendered his report, showing that the deficit which existed at the end of 1923 had been wiped out, and that the Cost Association was now in sound financial position. He also reported that the Association had received eight applications for membership within the last six weeks, and that he expected several more in the near future. He referred to the success which had attended the publication of the Association's *Monthly Journal*, started in April, 1924; also to the fact that a number of mills had been assisted in their claims for refund of Federal taxes paid in 1917, 1918, 1919 and 1920 by the work done by the Association along these lines.

New Officers Elected

Following his address, an election of new officers for 1925 took place. After President Reilly had stated that it would not be possible for him to continue in the presidency for another year, the following officers were elected unanimously:

President—John E. Hyde, S. D. Warren Company, Cumberland Mills, Maine.

Vice-President, Writing—James A. Reilly, American Writing Paper Co., Holyoke, Mass.

Vice-President, Sulphite Bond—W. F. Bromley, assistant treasurer of the Hammermill Paper Company, Erie, Pa.

Vice-President, Wrapping—A. M. Van Douser, auditor, Marathon Paper Mills Co., Rothschild, Wis.

Vice-President, Tissue—E. J. Fitzgerald, assistant secretary, Scott Paper Co., Chester, Pa.

Vice-President, Cover—J. C. McCormick, assistant treasurer, Knowlton Bros., Inc., Watertown, N. Y.

Vice-President, Board—G. A. Filer, auditor, Cornell Wood Products Co., 190 N. State street, Chicago, Ill.

JOHN E. HYDE, PRESIDENT

Vice-President, Converters—M. F. Peterson, assistant treasurer, U. S. Envelope Co., Springfield, Mass.

Vice-President, Rope—Ralph B. Hersey, cost accountant, Hollingsworth & Vose Co., 333 Washington street, Boston, Mass.

Vice-President, Hanging—E. H. Roorbach, Harmon Paper Co., Brownville, N. Y.

Vice-President, Waxed—Thomas W. Peck, Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

The secretary-treasurer requested that another accountant be named in each group to form a small committee with the vice-president in that group and himself, for the purpose of dealing with particular problems arising from time to time within the various groups, and to arrange for group meetings whenever and wherever it is thought best to hold them during the course of the year. These were named as follows:

Writing—R. B. Shemanski, George A. Whiting Paper Co., Menasha, Wis.

Sulphite Bond—L. J. Catheron, Eastern Mfg. Co., 199 Washington street, Boston, Mass.

Wrapping—D. C. Shaw, Jr., Tarentum Paper Mills, 2210 Oliver Building, Pittsburgh, Pa.

Tissue—Paul Koenig, Continental Paper & Bag Mills, 100 East 42nd street, New York City.

Cover—C. F. Niederman, Beckett Paper Co., Hamilton, Ohio.

Board—W. D. Bryson, assistant treasurer, Philadelphia Paper Mfg. Co., Manayunk, Philadelphia, Pa.

Book—W. C. Scott, Dill & Collins Co., 140 N. 6th street, Philadelphia, Pa.

Waxed—E. A. Meyer, Menasha Printing & Carton Co., Menasha, Wis.

Wrapping—B. H. Cooper, Bemis Brothers Bag Co., Peoria, Ill.

The secretary was also instructed to get into touch with any others who might wish to get together as a group to promote the use of better accounting methods in their group.

Thursday Evening's Banquet

A very fine banquet was held on Thursday evening, the music being supplied by Maurice Wolfsie's orchestra and song leader.

One of the most important sessions of the conference was held on Friday morning, the subject being "Steam and White Water Losses." These are the two items in which greater losses are incurred, perhaps, than in any other cost item in the manufacture of pulp and paper. W. G. MacNaughton, secretary-treasurer of the Technical Association of the Pulp and Paper Industry, opened with a short address, in which he emphasized the importance of the subject, and introduced G. D. Bearce, vice-chairman of the Committee on Waste, appointed by that association. Mr. Bearce's address will be printed later. In it he drew attention to the large annual savings that could be effected by those mills, where the efficiency of the steam plant was not more than 60 per cent. He distributed schedules showing the influence of boiler house efficiency on operating cost. In another schedule he illustrated savings that might be effected by reclaiming the fiber from white water, by the installation of "save-alls," etc. That large savings can be effected in this manner is an undisputed fact, only the best method of doing so being in question.

G. A. Ware, who followed Mr. Bearce, emphasized this fact, and urged upon the accountants present the importance of drawing attention to the necessity for taking action to counteract such losses, by producing forms and charts to illustrate clearly the dollars and cents value of the fibers which are lost regularly by their respective mills. A number of questions were asked the speakers, and, in fact, a very interesting and productive session was held. Copies of the proceedings will be forwarded to members of the Cost Association at an early date.

An Afternoon of Statistics

The afternoon session was devoted to statistics. Stanley Byron, statistician of the Hammermill Paper Company, spoke on "Our Statistical Charts," and illustrated by means of a blackboard some of the charts developed by his company which have been used very successfully in keeping the financial facts relating to the company's business clearly before the executives. Mr. Byron kindly consented to forward copies of these charts to the secretary-treasurer of the Cost Association at the request of some of those present, and copies will be issued in due course to the Association's members.

The other afternoon speaker was John H. Graff, of the Research Department of the Brown Company, Berlin, N. H. Mr. Graff has developed a new method of analyzing statistics. By means of lantern slides he explained clearly this method of analysis. While the subject was rather intricate for a meeting of this kind, Mr. Graff succeeded in conveying to those present the importance of the subject, and, moreover, convinced them that there was a great deal of merit in his plan. It is always a difficult matter to judge of such matters without a careful study of the methods employed. It is hoped that when Mr. Graff's address is published this study can be made and the point settled as to how far it can be successfully used, with a view to determining particularly the future market cost of those raw materials which play such an important part in the pulp and paper industry.

If Mr. Graff's method (which consists mainly of using known factors to determine the future course of other factors) can be used to determine with any degree of accuracy the future cost of raw material prices, he will surely have succeeded in accomplishing something that will mean the saving of great sums of money for the pulp and paper industry. It does not seem possible that this

should be so, and yet Mr. Graff exhibited charts which he claimed had been compiled in January of 1924, which undoubtedly foretold with a remarkable degree of accuracy the course since pursued by such items as bonds, money market, building statistics, etc. If his theory is equally accurate in regard to raw materials, the Cost Association has introduced to the industry a man that will be heard of a great deal in the future.

This address wound up a convention which can be ranked among the finest yet held by the Cost Association.

Those Who Attended

The following is a list of those present:

A. W. Astley, Chemical Paper Manufacturing Co., Holyoke, Mass.

Dr. N. P. Baker, American Paper & Pulp Association, 18 East 41st street, New York City.

B. H. Barlow, St. Croix Paper Co., Woodland, Maine.

Charles E. Bear, York Haven Paper Co., York Haven, Pa.

G. D. Bearce, engineer, Newsprint Service Bureau, 342 Madison avenue, New York City.

Joseph F. Bergen, Hamersley Manufacturing Co., Garfield, N. J.

Charles W. Bidwell, Fort Howard Paper Co., Green Bay, Wis.

Walter D. Bryson, Philadelphia Paper Manufacturing Co., Manayunk, Philadelphia, Pa.

Herbert N. Bugbee, Falulah Paper Co., Fitchburg, Mass.

Thomas J. Burke, secretary-treasurer, Cost Association of the Paper Industry, 18 East 41st street, New York City.

Seth L. Bush, Crocker & McElwain Co. and Chemical Paper Manufacturing Co., Holyoke, Mass.

Stanley Byron, Hammermill Paper Company, Erie, Pa.

Lewis J. Catheron, Eastern Manufacturing Co., 199 Washington street, Boston, Mass.

J. M. Chesnut, McDowell Paper Mills, Manayunk, Philadelphia, Pa.

B. H. Cooper, Bemis Brothers Bag Co., Peoria, Ill.

Ralph K. Cox, S. George Company, Wellsburg, W. Va.

P. E. Daverin, Strathmore Paper Co., Woronoco, Mass.

W. R. Davis, Scott Paper Co., Chester, Pa.

M. C. Dobrow, Writing Paper Manufacturers Association, 44 Vernon street, Springfield, Mass.

S. F. Fannon, director, Sherman Service, Inc., Boston, Mass.

G. A. Filer, Cornell Wood Products Co., 190 N. State street, Chicago, Ill.

John H. Graff (Research Department), Brown Company, Berlin, N. H.

Herbert H. Griswald, C. H. Dexter & Sons, Inc., Windsor Locks, Conn.

John Halligan, Newsprint Service Bureau, 342 Madison avenue, New York City.

E. A. Hawkins, P. H. Glatfelter Co., Spring Grove, Pa.

Ralph B. Hersey, Hollingsworth & Vose Co., 333 Washington street, Boston, Mass.

S. A. Hummer, The York Haven Paper Co., York Haven, Pa.

John E. Hyde, S. D. Warren Company, Cumberland Mills, Maine.

J. P. Jordan, Industrial Engineer, New York City.

John H. Karger, C. H. Dexter & Sons, Inc., Windsor Locks, Conn.

Miss Helen Kiely, American Writing Paper Co., Holyoke, Mass.

Alfred H. King, Crocker-McElwain Co., Holyoke, Mass.

J. H. Kline, York Haven Paper Co., York Haven, Pa.

Paul Koenig, Continental Paper & Bag Mills, 100 East 42nd street, New York City.

L. M. Lipa, Foster Box Board Co., Utica, N. Y.

A. C. Locke, Valley Paper Co., Holyoke, Mass.

W. G. MacNaughton, secretary-treasurer, Technical Association of the Pulp & Paper Industry, 18 East 41st street, New York City.

Richard J. H. Mays, Chemical Paper Manufacturing Co., Holyoke, Mass.

L. H. Olson, American Appraisal Co., 120 Broadway, New York City.

M. F. Peterson, U. S. Envelope Co., Springfield, Mass.

Arthur F. Platt, Hollingsworth & Vose Co., East Walpole, Mass.

G. D. Porter, Strathmore Paper Co., Mittineague, Mass.

Charles M. Ready, St. Croix Paper Co., Boston, Mass.

James A. Reilly, American Writing Paper Co., Holyoke, Mass.

John T. Robinson, Hollingsworth & Vose Co., 333 Washington street, Boston, Mass.

S. R. Royce, Arrowhead Mills, Inc., Fulton, N. Y.

E. H. Roorbach, Harmon Paper Co., Brownville, N. Y.

W. C. Scott, Dill & Collins Co., Philadelphia, Pa.

D. C. Shaw, Jr., Tarentum Paper Mills, 2210 Oliver Building, Pittsburgh, Pa.

J. Austin Smith, J. Austin Smith & Co., 50 East 42nd street, New York City.

A. S. Van Houten, Hamersley Manufacturing Co., Garfield, N. J.

Louis von Hasslacher, Robert Gair Company, New York.

N. G. Weber, Dill & Collins Co., Philadelphia, Pa.

C. O. Wellington, C. P. A., Scovell, Wellington & Co., Boston, Mass.

Charles E. Whitten, Canadian Paperboard Co., Ltd., 2 Seigneurs street, Montreal, Canada.

Joseph E. Whitman, S. D. Warren Company, Cumberland Mills, Maine.

Adam Wilkinson, Labor Commissioner, American Writing Paper Co., Holyoke, Mass.

Advisory Committee Meets Today

The Advisory Committee from the Paper Industry to the Department of Commerce is meeting in Washington today. The following members have given assurance of being present:

A. H. Nevius, Miami Paper Company; E. H. Burton, A. P. W. Paper Company; J. P. Hummel, Hummel-Ross Fibre Corp.; J. V. Bacon, Sherman Paper Company; A. D. Coffin, C. H. Dexter and Sons; L. H. Davey, the Davey Company.

Guests who have signified their intentions of being present are Secretary Hoover of the Department of Commerce; John Matthews Jr., chief of the Paper Section of the Bureau of Foreign and Domestic Commerce; O. M. Butler, acting chief of the Paper Division of the Bureau of Foreign and Domestic Commerce; Col. W .B. Greeley, U. S. Forest Service; Director George K. Burgess, Bureau of Standards; B. W. Scribner, chief of the Paper Section of the Bureau of Standards; Dr. Julius Klein, of the Bureau of Foreign and Domestic Commerce; E. H. Naylor of the Writing Paper Manufacturers' Association; Col. W. DuB. Brookings, Department of Commerce; Elliott H. Goodwin, of the U. S. Chamber of Commerce; George E. Nelson, West Virginia Pulp and Paper Company.

The meeting will open with addresses by Secretary Hoover and Dr. Klein, after which the meeting will be taken over by John Matthews Jr., chief of the Paper Section of the Bureau of Foreign and Domestic Commerce, who will speak on the importance of foreign trade to the paper industry.

At 11:45 the meeting will be taken over by the Paper Division. The afternoon session will open with a talk on simplified practice by R. M. Hudson, Chief of the Division of Simplified Practice. A. H. Outhank, Chief of the Department of Commerce division will then speak on the activities in that field. The meeting will then close with an open session for general discussion.

Newark Parchment Paper Co. Burned

COLUMBUS, Ohio, December 15, 1924.—Damages estimated at $125,000 were done by a fire which occurred at the plant of the Newark Paraffine and Parchment Paper Company, 157 West Main street recently. The fire was of unknown origin.

MONTREAL NEWSPAPERS USE NEW ARGUMENT FOR EMBARGO

Say Lack of Pulpwood Embargo is Responsible for Magazine's Change of Plans Regarding Location of Mill—E. B. Eddy Co. Makes Record on Its Mill Construction Work Started on July 1 of the Present Year—Quebec Pulp and Paper Co. Incorporates for $7,250,000 — Complete Agreement Arrived at in Norman Dam Controversy—New Issue of Price Bros. Stock Now Being Offered.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., December 15, 1924.—Some newspapers here are making capital of the fact that the publishers of the new Chicago weekly, "Liberty," are erecting a mill at North Tonawanda, N. Y., for supplying that weekly with paper. It is understood that the original proposal was to erect a mill in Canada but that owing to the duty on paper of a better grade than news print, it has been decided to erect it in the United States. It is argued here that this would not have been done if there were an embargo on the export of pulpwood as the mill will get its raw material from the limits owned by the Chicago Tribune in the province of Quebec. The "Liberty" publishers when they leased these timber lands undertook to construct a pulpwood mill in the Quebec province, as covered by their contract. In their advertisements of Liberty, which have been reproduced in Canadian newspapers, a great point is made of pictures showing the company's pulpwood areas in Canada and ships carrying the pulpwood to the new mill at North Tonawanda. It is further stated that owing to the prominence given to this advertising by people in Canada who are advocating an embargo on pulpwood, the publicity department of "Liberty" has been instructed to put the soft pedal on further advertising of this type and a blunt statement to this effect is made by the "Financial Post" of Toronto, which further suggests that the Quebec government should look into the terms of the contract with the Chicago publishers who own the timber limits in Canada referred to. These limits are on the Manicouagan River, on the lower St. Lawrence. Further prominence is given to the statement that the Fraser Company of Edmundston, N. B., are planning to erect a book paper mill at Madawaska, Maine. which is across the river from Edmundston. This mill, it is stated, will have a capacity of 200 tons a day and the influence is that the pulpwood for its supply will come from New Brunswick. The Fraser Company operates a 150 ton sulphite fibre mill at Edmundston. A dispatch from Fredericton, N. B., states that some of the proposed development of the Grand Falls will probably be used to operate the new paper mill in Maine and that application for the same will be made shortly. The river is an international waterway and it follows, therefore, that part of the power generated may be used on the Maine side of the river.

E. B. Eddy Co. Makes Record

The new sulphite pulp and news print mill of the E. B. Eddy Company, Limited, Hull, Quebec, upon which work was commenced shortly after July 1, of this year, is now completely under roof, with digesters, boilers, machines and all accessory equipment being rapidly installed. The mile of new railroad from the upper plant to the new mill site, including some thousand feet of steel and concrete trestle at Bridge street crossing and two bridges of 143 foot and 92 foot spans respectively, was completed on November 29, and the first carloads of equipment were delivered at the shipping platform of the new plant on the following day. Both pulp and paper mills are expected to be in operation the early part of the coming year, and the progress so far made on this work is said to constitute a record performance in the industry for this type of plant. The E. B. Eddy Co. Ltd. is one of the oldest established pulp and paper manufacturing establishments in the Dominion, their activities dating back to 1851. G. H. Millen is president, J. T. Sherriff is vice-president, Anglin-Norcross, Limited, are the general contractors on the work, H. S. Taylor, consulting engineer, being in charge of engineering and design.

Quebec Pulp and Paper Co., Incorporated

Among the incorporations of the past week, prominence is given to the listing of the Quebec Pulp and Paper Company Ltd., with a capitalization of $7,250,000. The company is empowered among other things to acquire in whole or part, by purchase, lease, exchange or otherwise, the property, franchises, undertaking, business or the capital stock, shares, bonds, debentures, notes and other securities of the Chicoutimi Pulp Company, Chicoutimi Port Company, La Cie. Generale du Port de Chicoutimi, Saguenay Pulp and Power Company, Chicoutimi Freehold Estates, Limited, and Saguenay Light and Power Company and also the capital stock, shares, bonds, debentures, and other securities of the Roberval-Saguenay Railway Company.

Agreement As to Norman Dam

Settlement of the Norman Dam controversy and complete agreement upon the terms under which Manitoba pulpwood berth No. 2 will be offered for sale, have been reached at week-end conferences held in Ottawa, according to despatches. The Norman Dam question, which affects the control of the levels of the Winnipeg River and the Lake of the Woods, has been settled, according to this report, favorably to Manitoba interests. As now drafted, the proposal does not provide for ownership of the dam and this phase of the matter has not been definitely closed. Respecting the lease of a large pulpwood berth in the province, the despatch states that new terms which will be incorporated in the regulations show that the original proposals have been modified to meet the objections of the Manitoba Government, and interests representing settlers, miners and small lumber dealers in the district.

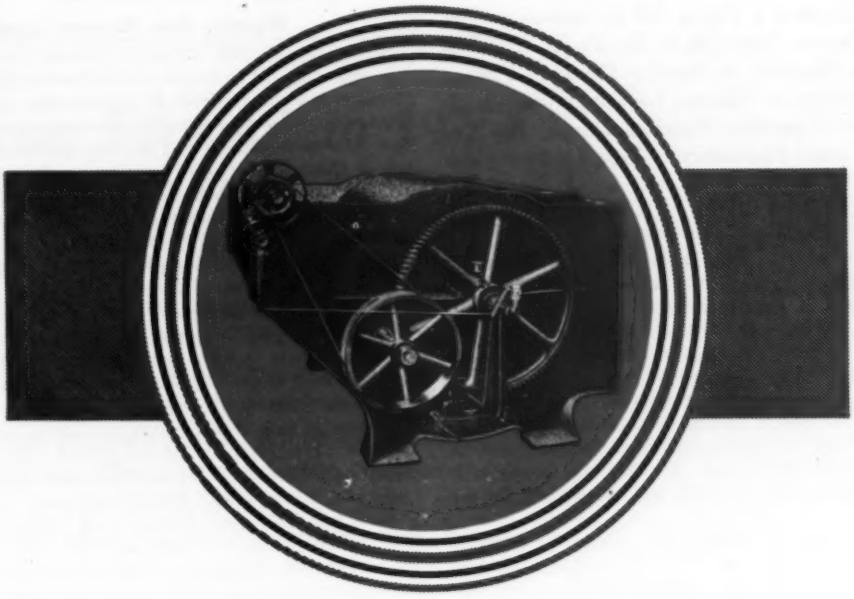
New Issue of Price Bros.

Public offering was made this week of a new stock issue in connection with Price Brothers Company of $7,000,000 at 6½ per cent cumulative redeeming sinking fund preferred stock. This issue was underwritten by Royal Securities Corporation and is being sold at 96 and accrued dividend to provide a yield of 6¾ per cent. Of the total, $2,000,000 has been taken by Andrew Holt & Company and Kitcat & Aitken, of London, Eng., for distribution in the British market. This financing is being carried out in connection with the building of the St. Joseph d'Alma mill which will increase the output of the company from 500 to 700 tons daily. The development of the mill at St. Joseph d'Alma it is estimated will cost about $6,000,000 and the new issue will cover a portion of this cost as well as refunding a portion of the $8,500,000 spent in other improvements and additions since January 1, 1923. It will be recalled that a bond issue of $10,000,000 was made last year of which $5,000,000 was applied to refunding an existing bond issue, and the balance, in the main, to cover the cost of installation of the two new machines at Kenogami. The new mill will secure power over a one-mile transmission from the Duke-Price power development on the Grande Discharge of which Price Bros. owns one-third.

To Resist Advance on China Clay Duty

Several of the importers of English China Clay are taking steps to resist the attempt now being made to advance the duty on English China Clay. As an initial move they have retained the services of Henry A. Wise of the legal firm of Wise, Whitney and Parker of this city.

The importers who are interested in making this protest are English China Clays Sales Corp., Hammill & Gillespie, Inc. and John W. Higman Company of this city; A. M. Meincke, Chicago; Morey & Co., Cambridge, Mass.; Paper Makers Importing Company, Inc., Easton, Pa.; John Richardson Company, Boston.



Worth While Stock Saving

THE amount of stock recovered on a Save-All may look small at any one time, but remember this operation goes on every hour all day. A pound a minute means ¾ of a ton a day. Bird Save-Alls in many mills are saving this and more.

The BIRD SAVE-ALL

BIRD MACHINE COMPANY
SOUTH WALPOLE - MASSACHUSETTS

BIRD MACHINERY

7088

HOLIDAY DEPRESSION HAS SETTLED ON CHICAGO TRADE

Past Week Has Witnessed a Falling Off of Business in Fine and Coarse Papers—Paper Stock, Boards and Container Are Thriving, However, on Holiday Demand—Printing Trades Association of Chicago Organized with A. J. Weinsheimer as President—Pinkerton Folding Box Co. Increases Its Capital Preparatory to Putting a New Folding Carton on the Market.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, Ill., December, 15, 1924.—Trade has migrated, so many think, to branches of industry that cater to holiday trade, leaving the paper market devoid of some of its usual good customers. In other words, there is less buying of finer grade and coarse as well. It gives concern to some who size up potential business by prevailing circumstances, rather than what appears just beyond.

Just how the year will wind up for most firms as far as profit and loss is concerned, is quite a matter of conjecture with a good many. It is admitted that the quadrennial elections put a dent in profits for the second half of the year. The first was considerably better. This is usually the rule but 1924 will make the difference even more marked.

Even with a slight let-up in demand, the market holds rather steady. Changes in f. o. b. mill quotations are lacking all around and factors feel that there will be no material change on any fine grades for several months.

Coarse Market Lacks Strong Demand

Some of the life of the last few months has been taken out of the coarse paper market, according to authoritative reports. In fact, from December 15 on, salesmen for coarse paper merchants will merely book what orders are placed because of necessity. Stocks in hand of consumers are permitted to dwindle down close to the safety line, or rather the danger point, and the nearer comes inventory, the lower they go. However, there is bound to be a reaction to this following the holiday and inventory period and it is that prospective business that keeps everybody cheered and preparing for it when it breaks. Some of the merchants are buying very regularly now so as to be ready to supply the demand when it does come.

Board Mills Run Heavier

While the holiday season appears to have a depressing effect upon the finer branches of the paper industry, paper stock and boards and container thrive on it. Both are in better condition now than they have been for four or five months and the outlook for the immediate future is even more promising. It is reported that some board mills are running to capacity, whereas, but a few weeks ago they were considered fortunate if they operated but 75 per cent. of the time. It looks as though the buying season for this field is coming to the front.

Heavier schedules for board and container mills forces them into the Chicago market for paper stock. Naturally enough, this has forced prices higher, not much, but a trifle on the lower grades. Mixed papers and old newspapers are slightly higher this week as a result. There are also a few advances here and there in the list, but they are principally confined to lower varieties. The turn of the year should bring even stronger demand, judging by prevailing conditions, and all in the paper stock industry in the Windy City are preparing for the heaviest call for their stocks that has been experienced any time in the last four or five months.

Roofing stock has shot straight upward, going as high as $50.00 per ton for No. 1, grade. This is almost unprecedented. At least for more than a year it has not struck such a high figure. Scarcity of rags is given as the reason, while reports have it that the demand is fairly active. No forecast is obtainable in this division except for a week or more, and onbody seems inclined to say that there is possibility of lower prices soon.

Organize New Printers Association

A new organization within the printing industry of Chicago is now operating. It is known as the Printing Trades Association of Chicago, embracing within its membership only a portion of the firms here. In other words, it is more of a local group. However, there is a movement on foot to form the Master Printers Federation of Chicago, which will be a huge organization including all of the local groups of printers now operating independently. This seems sure of being effected within the near future.

The Printing Trades Association of Chicago is managed by Joseph A. Borden, who has offices at 230 E. Ohio street. It is engaged in the promotion of a uniform system of cost accounting and keeping records of the cost of production in various plants. Out of this activity the "Cost and Production Scale" has been devised, which is a little booklet containing the actual cost of doing the particular kind of printing work in which the members are engaged. This scale is based upon the composite average hour costs and production records of the houses.

Officers of the association are as follows: President, A. J. Weinsheimer, of McGill-Weinsheimer Company; vice-president, H. W. Campbell, of W. F. Hall Printing Company; secretary, Max Lau, of Max Lau Colortype Company, and treasurer D. F. Keller, of D. F. Keller Company. These, with the following, form the board of directors: V. R. Lynch, of Wells & Co., Theo. Regensteiner, of Regensteiner Colortype Company, and E. Lennox, of the American Colortype Company.

Pinkerton Raises Capital and Makes New Box

E. E. Pinkerton, president and organizer of the Pinkerton Folding Box Company at 414 Rush street, announces that the firm has increased its capital from $25,000 to $100,000 and the number of directors from three to five. The company has been operating for 25 years and heretofore has been a close corporation. However, it is the intention to sell $25,000 worth of stock to investors.

The reason for this is a new folding carton which Mr. Pinkerton has just perfected and placed on the market. It is intended to replace the old conventional wooden berry box which berry growers have used to market their product. This new berry box is made in pints and quarts and is parafined to protect the berries and the paper board of which the box is made. The boxes can be shipped flat and folded up just prior to being filled. The procedure is simple. Mr. Pinkerton has also devised a simple crate of wood in which sixteen and 24 filled boxes can be shipped. The sides of these crates are made of corrugated board. The box is less costly than the wooden ones now in vogue.

Hill Clutch Machine Co. at Power Show

The Hill Clutch Machine and Foundry Company, Cleveland, Ohio, had a very interesting exhibit at the third National Exposition of Power and Mechanical Engineering held in New York City at the Grand Central Palace during the week beginning December 1. A. L. Whiteside, sales engineer of the New York office was in charge.

The principal products featured were "Smith Type" Hill Friction Clutches, "Cleveland Type" Collar Oiling Bearings, "Industrial Type" Spur Gear Speed Transformers and "Steelarm" Automatic Belt Tighteners. The product of The Hill Clutch Machine and Foundry Company is of sturdy design throughout, dependable and efficient. For nearly half a century this Company's product has been used in practically every industry where power transmission is required. The company will be pleased to mail literature to any one interested in its equipment and particularly to those who had an opportunity of witnessing the exhibit at the Power Show.

Looking Forward *to* 1925

Will You Make Better Paper at a Lower Cost?

Business will be better for those who make it better during the coming year. Are you one of those who intend to make it better by producing a better product at a lower cost? Plans are now being made by many mills to do just that thing. As a vital part of their plans they are now installing a Voith High Pressure Stock Inlet on their Fourdrinier machines. The experience of many of them—those who already have this new equipment on one or more of their machines—proves that better quality can not help but result and costs are always lowered. Give us an opportunity to prove this statement. We have ready for you a booklet that will give you full particulars regarding the new Inlet. Write for it today.

VALLEY IRON WORKS CO.

APPLETON, WISCONSIN

New York Office: 350 Madison Ave.

The Voith High Pressure Stock Inlet makes possible a sheet of uniform caliper and one without lumps and foam spots. The stock can be fed to the wire at any speed desired. All slices and aprons are eliminated.

HOLIDAY LULL BEING FELT IN THE PHILADELPHIA TRADE

Reaction is Setting in Earlier Than Usual and Demand in Various Lines is Falling Off Materially—Trade Custom on Broken Lots Unanimously Adopted by Typothetæ—Wholesale Waste Merchants' Association Making Plans for Annual Banquet to be Held in February—Riegel & Co. to Tender Christmas Get-Together Dinner to Sales Organization and Executives.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., December 15, 1924.—True to old time form the paper trade has reacted to the customary holiday lull of December. This year the temporary resting period has been much earlier than in normal times. While the two previous months were slightly better businesswise than the entire period of the year's cycle it was forecasted that the improvement would continue until way into the New Year. However, the reaction to the quieter pre-Christmas business trend has not discouraged the distributors in their preparation and optimistic outlook for the general industrial word. And so, while the resting period is on, there continues the intensive drive for larger paper sales among the local houses when the present year has passed and the New Year's business wheels are put in motion. Inquiries too have fallen off considerably.

With the larger publishing and printing firms well supplied with all grades of books, covers, Newsprint and other grades of fine papers used in the printing and publishing of catalogues and other advertising specialties and business reports that flood the mails in the early days of the year, there has been a decided falling off of shipments in these lines. A few of the specialties such as greeting card and announcement stocks, engraving papers, and high grade writings have been moving in larger volume.

A few of the grades of wrapping papers, particularly Krafts, have been holding well in the holiday markets.

Typothetæ Acts on Trade Custom

Unanimous approval of the recently adopted Trade Custom on broken lots which the Philadelphia Paper Trade Association announced as becoming effective this month was given by the Executive Committee of the Typothetæ when it met on Monday last. While an announcement was planned to be sent out on November 28 by the Philadelphia Paper Trade Association informing the printing, stationery and other consumers of fine paper that future deliveries of broken lots would be made at an advance of 25 per cent when said lots accompanied full packages, under a new Trade Custom, it was held back on request of the Typothetæ pending the approval of the master printers' association. Last Monday's meeting was specially arranged for a conference between the representatives of the Paper Trade Association, Norbert A. Considine of the Paper House of Pennsylvania and David Lindsay of Lindsay Brothers, heading the Paper Trade Committee of the Typothetæ for the purpose of reviewing the Custom and its possible revision to the mutual satisfaction of both organizations. The 30 members of the Executive Committee of the Typothetæ, after submitting the suggestions of several of its members, discussed them with the paper trade representatives. These methods which they thought might be applied for solution of the problem were found to be unfeasible and finally they reached an agreement whereby a six months' tryout of the new Trade Custom was unanimously approved and accepted by the printers. There was a long drawn out discussion into the details of ways and means for handling the broken lot orders as the printers viewed them but none that could be practically applied in so far as the paper men were concerned and for that reason the half year term was accepted as a basis upon which to determine the future action of the printer's association. President S. Clayton Wicks of the Typothetæ headed the Committee of the Master Printers. The problem of broken lots has long been a disputed question with the allied industries composing the Graphic Arts Group and consumers of fine papers. Heretofore the paper dealers have been material losers where small amounts have been ordered through the damage to stock, heavy cost of overhead in delivery and shipping of these and other incidentals of handling. After making a thorough investigation into the cost of handling such small lot business by various houses in the local paper distribution trade and the submitting of all findings to the Association, it was found necessary to issue an amended Trade Custom relating to the broken packages. The announcement which is now to be sent to the consumers of fine paper will read:—

"Effective as of December, 1924. Trade Custom as adopted by the Paper Trade Association of Philadelphia, relative to the broken packages, was amended to read as follows:—'An advance of 25 per cent will be charged on less than original package, for all Ledgers, Writings, Bonds, Coated Books, Blottings, Covers, Onion Skins and all lightweight papers, whether or not accompanied by one or more full packages.'"

Waste Merchants to Banquet

For the first time since the reorganization and the combination of the various branches of the Waste Trade into a single organization, the members of the Philadelphia Wholesale Waste Merchants Association will gather in an annual banquet to be held in February of next year at the Hotel Lorraine, Broad and Fairmont avenue. The decision to this effect was reached when the members met at th Hotel Lorraine last Thursday and nominated officers who will be elected at the February gathering, on a date to be selected by the Entertainment Committee appointed last week. Those who have charge of the arrangements are Thomas Kenny, William J. McGarity, Sr., and Thomas F. Simmons. The following were nominated for election to the official list: President, Evan G. Baodger; Vice President, Thomas A. Kenny, International Trading Company; Treasurer, William L. Simmons, John Simmons' Sons and Secretary William J. McGarity, Sr. This is the fourteenth time that President G. B. Badger has been honored with the presidency, his official services having been consecutively rendered since 1910. Those who were nominated for the Executive Committee are: John Murphy, Daniel I. Murphy, Inc.; Samuel Imber, H. Feldman & Co.; Charles J. McNichol, P. DeSanti & Co.; Edward Orr of Infante Brothers and Louis Bantivoglio of the Camden Paper Company. While the Philadelphia Paper Stock Dealers Association has been holding these banquets annually for more than 21 years this is the first of annual affairs for the new Association, an out-growth of the older organization. With the combination of the various branches of the Waste, Paper Stock, Metal and Rag Divisions of the trade, there have been enrolled 39 firms comprising these industries during the year.

Riegel & Co., Inc., in Social Gathering

The holiday spirit will prevail at the get-together dinner and entertainment which will be tendered by the members of the firm of Riegel & Co., Inc., to its sales organization and executives on December 20. The members of the firm who will play Santa Claus and preside in the dispensing of Yuletide cheer are: President George E. Riegel, Treasurer Aruther B. Sherrill, Assistant Treasurer W. Predmore and Secretary George E. Randolph. The dinner and vaudeville entertainment will be arranged by a committee composed of the following members of the business family:—James McCracken, R. L. McCall and E. J. Irwin. They have selected the Rittenhouse Hotel as the place and are now arranging the other details of providing professional talent and musical program which will round out the evening's festivities. Mr. Sherrill, who is now in the Middle West, will return in time for the dinner. He is visiting the mills in that territory and will be joined this week by Assistant Treasurer Predmore, both stopping over in Chicago and Indianapolis before making the return trip.

Established 1886

Winter Shipments

The buyer in need of expeditious service will find our facilities equal to any emergency, especially during the winter season with its numerous contingencies due to weather conditions.

Our pulp resources are being constantly amplified by large shipments in transit and regular deliveries from open European ports. It will pay you to confer with us regarding your needs in Imported and Domestic Bleached and Unbleached Sulphite, Kraft and Ground Wood.

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SEASONABLE PAPER DEMAND IS REPORTED IN TORONTO

Paper Specialties in Good Demand for Holiday Season—Prices on All Kinds of Paper Continue Firm and 1925 is Looked Forward to with Confidence—Lagging Operations, Owing to Abundance of Labor and Lower Wages More Active in Northern and Northwestern Ontario Than Anticipated—Abitibi Power & Paper Co. Buys More Than 50 Per Cent of Pulpwood Requirements From Settlers.

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ont., December 15, 1924.—Business continues fair in the paper line. A big Christmas rush, aided by cool weather and a fall of snow, has stimulated general trade in many directions, which has resulted in paper specialties finding a ready market. Jobbers are getting ready for the taking of their annual inventories and, of course, are not buying much from the mills at the present time in order to keep stock down to the minimum. Printers are doing likewise but have been making rather numerous purchases in special lines of paper to keep up with the holiday orders for publicity matter. Coated paper mills are still busy and book and writing plants are running to fair capacity.

No one will make any definite predictions in regard to next year's business but a better feeling prevails all around and more distributors are talking of a large turnover. Jobbers on the whole have had a fair year but it is doubtful if it will, in the aggregate, amount to as much as last season. The profits will not be so heavy and collections have been poorer. It has been more difficult to market the product of the various paper houses and the fall activity, which was expected to round out a very satisfactory twelve months, did not materialize to the extent expected. Prices still hold firm on most lines and 1925 is being looked forward to with confidence. Conditions are fundamentally sound and some troublesome issues, which cropped up during the past few months, are out of the way.

Embargo on Hardwoods Goes Into Effect

At the last session of the Ontario Legislature an act was passed prohibiting the export of hardwood timber and logs from the province unless manufactured into lumber, lath, etc. It was provided that the act should come into force on a date to be named by the Lieutenant-Governor by his proclamation. It has now been proclaimed and the date is January 1, 1925. The prohibition of the export of hard wood has now been added to that of pine, hemlock and pulpwood. The embargo on the export of pulpwood from the Crown lands of Ontario came into force in 1900 while the embargo on the export of pine sawlogs went into operation in 1897 by an order-in-council and was subsequently confirmed by legislation in 1908. Pulpwood and other woods can still be exported from Ontario in an unmanufactured state but only from private lands. All wood taken from lands belonging to the Crown or, in other words, the province, must be turned into finished articles before being exported. It is expected that, as a result of the prohibition on hardwoods, which is just now going into effect, a number of new woodworking industries will be established in Northern Ontario.

Will Battle for Pulpwood Embargo

The *St. Catharines Standard*, which is published in the Niagara district, where many pulp and paper mills are located, has declared that it will abandon party politics at the next federal election and support whichever party is favorable to an embargo being placed on the export of pulpwood from private lands. The paper says that "the issue is of vital interest to that district in which the manufacture of paper has been developed to a great degree of success. The people want to know why it is possible for a large paper plant to be built across the river to be operated on pulpwood from Canada's forests and to employ American workmen when a national policy for Canada, in regard to natural resources would have made the Niagara Peninsula, with its wonderful waterway system, the logical location of such a large and important addition to industry."

Cut of Pulpwood Is Smaller

Major J. I. Hartt, of Orillia, who is inspector of Crown Timber Agencies, has returned from an extended business trip to Northern and Northwestern Ontario and says that many lumbermen are taking out a larger cut this season than at first anticipated owing to the abundance of labor and the lower rate of wages which will considerably cheapen production in the logging line. The cut of pulp wood, Major Hartt estimates, will be only about sixty per cent of what it was last winter. This applies particularly to balsam and spruce. Prices are lower by a dollar to a dollar and a half a cord than at this period in 1923. A leading authority on pulpwood tsated this week that within six months the price of wood would increase from a dollar to two dollars a cord, by reason of the falling off in the amount being taken out.

Buying Much Pulpwood From Settlers

The Abitibi Power and Paper Company, Iroquois Falls, Ont., is purchasing over fifty per cent of its pulpwood requirements for the coming season from settlers in Ontario and, in addition to the usual districts in Ontario, a new source is being tapped in Quebec in and around Makinik. The new logging railway built by the company will begin delivering wood to the mill about the end of the present week. The frost and snow have given an impetus to pulpwood activities and splendid progress has been made.

Notes and Jottings of the Industry

R. B. Foulis, superintendent of the coating paper mill of the Provincial Paper Mills, at Georgetown, Ont., is able to resume his duties after being confined to the hospital for some time.

R. Branch, sales manager of the Canadian Barking Drum Company, Toronto, has returned after an extended visit to the pulp and paper mills in Northern Ontario.

T. J. Allen, of Paper Sales, Limited, Toronto, spent the past week in Montreal calling on the trade.

Francis Wright, of Smith, Davidson & Wright, wholesale paper dealers, Vancouver, B. C., was in Toronto during the past week calling upon friends in the industry.

George E. Allen, of Buntin, Reid Company, Toronto, has left on a trip to the Old Country and will spend some time at his old home near Belfast, Ireland.

Miss Jones of the staff of the Interlake Tissue Mills, Toronto, has returned after an extended visit to England, where she spent several weeks on a holiday.

W. H. R. Richardson of the Eastern Pulp Company of Canada, Montreal, was a business visitor to Toronto during the past week.

A provincial charter has been granted to the McFadden, Sheppard, Dunn Lumber Company of Waubashene, Ont., to carry on a general lumber and pulpwood business.

L. H. Gardner of the Garden City Paper Mills, St. Catharines, Ont., who has been undergoing medical treatment in Buffalo, N. Y., is much improved in health and has returned to his home.

John Vanier of the Abitibi Power and Paper Company was re-elected Mayor of Iroquois Falls at the recent municipal elections.

R. A. McInnis, manager of the Abitibi Power and Paper Company, Iroquois Falls, Ont., spent a few days in Toronto recently.

The Dominion Envelope and Carton Company, 150 Duchess street, Toronto, are erecting an addition to their plant at a cost of $60,000.

The foundation has been laid for a new Forestry Building in connection with Toronto University. The structure will be three stories high and will be equipped with every modern facility.

F. N. Youngman, general manager of the Thunder Bay Pulp and Paper Company, Port Arthur, Ont., has returned from a visit to the camps of the company at Black Sturgeon.

It Beats the Dutch

THAT is—the new Dilts Beating Engine is much more efficient than the ordinary Hollander beater.

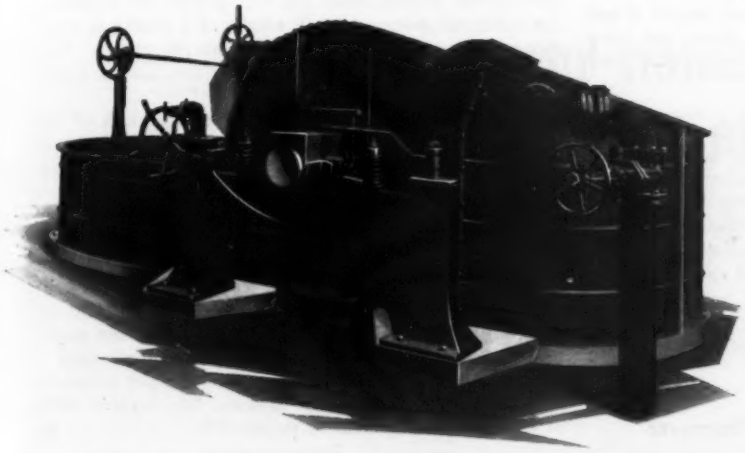
1st—It is capable of much faster circulation —mixes more thoroughly—beats better and quicker.

2nd—It handles stock of high densities—permits a heavier furnish—power is used for beating the stock instead of water.

3rd—Roll speed and power same as ordinary Hollander engine.

Let us send you a technical description with blue prints of this new beater.

Dilts



"Your paper is made in the beaters"

Dilts

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EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

7462

New York Trade Jottings

The Atlantic States Shippers Advisory Board will meet in New York on January 8. Reports as to car requirements for woodpulp, rags and paper stock will be given for the first quarter of 1925.

* * *

The Binders Board Association will hold a regular meeting next Thursday at which the customary reports will be made on business conditions and wage rates and other subjects will be discussed.

* * *

The meeting of the Advisory Committee from the Paper Industry to the Bureau of Standards which was to have been held in Washington tomorrow has been postponed. A new date for the meeting has not yet been decided on.

* * *

The Salesmen's Association held its weekly luncheon at the Hotel Belmont Monday noon. The discussion was devoted to the plans for the program of convention week. The complete program, it is said, will be announced at least a month before the opening date of the convention.

* * *

The West Virginia Pulp and Paper Company, Fifth Avenue building, has filed a notice of increase in capital stock from $8,000,000 to $125,000,000. At the offices of the company it is stated that only a certain amount of preferred stock will be issued at this time, the entire issue having been subscribed by the present stockholders.

* * *

Owing to the fact that B. H. Sherman, formerly with the Northern Paper Mills of Green Bay, Wis., is now associated with Charles W. Hills of Chicago and therefore no longer in a position to act as a pulp testing chemist, his name has been removed from the list of chemists approved by the Joint Committee on Approved Chemists. The commitee has recently approved for listing the name of Wilhelm Matteson, Box 107, Port Alfred, Canada.

* * *

A number of the affiliated sections of the Waxed Paper Association of which Assistant Secretary O. M. Porter of the American Paper and Pulp Association, is the secretary, are considering the advisability of preparing regular Sale and Want bulletins in which the members can list those items which they have to dispose of and those which they are in the market for. The glazed and fancy section is already doing this and is finding the experiment very helpful.

* * *

The Waxed Paper Association held a meeting at the McAlpin Hotel last week, there being a large attendance of members. The meeting unanimously adopted the plan for the publication of educational bulletins and each member has underwritten his share for the publication of these during the next year. The bulletins will be sent to all customers of the members. The association has under consideration the collective purchasing of wax and also proposes to compile weekly reports of orders and sales of bread wrappers, tissues and other grades of waxed paper. The next meeting of the Association will be on Tuesday, February 3. It will be the annual meeting and will be held at the Waldorf.

Swedish Pulp and Paper Industry Improves

STOCKHOLM, Dec. 9, 1924.—With the new wage agreements accepted, new mills planned, large orders coming in, and a banner year of production and export passing into history, the Swedish pulp and paper industry is ready to welcome the new year with high hopes.

The increase in the export of Swedish pulp this year may be inferred from the official figures for the first nine months, when the total shipments were 809,100 metric tons, as against 542,800 tons during the corresponding nine months of 1923. This is a gain of about 49 per cent. At the same time the paper exports increased nearly 15 per cent, or from 107,700 tons during January-September, 1923, to 123,600 tons during the corresponding months of 1924.

The sales during later months have been brisk. Thus, during October orders for 62,000 tons of chemical pulp were received, of which 24,000 tons were for delivery during 1925. The United States and France continue to be enthusiastic buyers, and the shipments to those countries next year will doubtless break all records. In England, however, the demand for chemical pulp has been tapering off, due, it is said, to the fact that the English mills anticipate a curtailed demand for their standard news print in Australia.

Two new pulp mills in Sweden which will add 45,000 tons to her annual output are now definitely planned, one at Härnösand, already reported upon, and one at Pitea. The mill at Pitea, is to be built by Ytterstfors-Munksund Company, according to a decision made at a special meeting of stockholders just held. This company at present owns and operates ten saw mills at various points between Haparanda and Skelleftea, and now plans to centralize this activity in three or four mills, at the same time adding a pulp mill with an annual capacity of 30,000 tons. The aim is to effect the most perfect economy in the combined production of lumber and pulp. It is said that one item alone, the waste from the saw mills which is now unused will then be worth about $50,000 a year to the company.

A new wage agreement for the pulp workers has been approved and accepted by employers and employees. Of the 15,500 men employed in the pulp mills about one-third receive no change in wages, while the others receive increases varying from about 10 per cent downward, depending on the cost of living in the particular district where the worker is employed.

Western Board and Paper Co. Improvements

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., December 15, 1924.—To increase its beater and power capacity, thus making it possible to produce 100 tons of board daily, the Western Board and Paper Company is spending $60,000 for further improvements to its plant, according to Winship Hodge, manager of the concern.

Mr. Hodge reports that the present boiler house is being extended, the new addition to be 70 by 80 feet in dimensions. A five hundred horse power Wickes boiler has been ordered for installation, while the additional power unit will consist of a Hamilton engine direct connected to a 300 k. w. Westinghouse generator. The Dayton Beater and Hoist Company is building two beaters, one 1,500 the other 2,200 pounds capacity.

"We have been held back in production by lack of power and beater capacity" said Mr. Hodge. "The additions now being made will eliminate that difficulty. Our board machine, originally designed to produce 25 tons daily, has, since being rebuilt, made as high as 87½ tons of board a day. We have run steadily for a week on average of approximately 80 tons daily. We have been quite as anxious to increase quality as well as mere tonnage and are accomplishing both ends in the improvements mapped out."

To finance the expansion program the Western Board and Paper Company has offered to its stockholders $100,000 first mortgage 6½ percent bonds to run 15 years. It has been three times oversubscribed. This concern has been very busy the past 12 months and is now operating steadily at full capacity. The regular dividend rate of 12 percent was maintained during 1924.

Goes with Mead Co. at Dayton

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., December 17, 1924.—Alan G. Goldsmith chief of the European Division of the Bureau of Foreign and Domestic Commerce, Department of Commerce has resigned his position to return to the G. H. Mead Paper Company of Dayton, Ohio. His resignation becomes effective January 1. Mr. Goldsmith is from Middletown, Ohio.

Another "Beloit" innovation, soon to be announced, will be our contribution to the paper industry.

Send us your name now for advance mailing of "1925 Innovation" when ready.

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Editorial

Vol. LXXIX New York, December 18, 1924 No. 25
HENRY J. BERGER, Editor

COMING EVENTS

American Paper and Pulp Association, Convention and Meeting of Affiliated Associations, Waldorf-Astoria, February 2-5.
Technical Association of the Pulp and Paper Industry, Convention, Waldorf-Astoria, April 3-5.
Salesmen's Association of the Paper Industry, Convention, Waldorf-Astoria, April 2-5.

EXPORT TRADE VITALLY IMPORTANT

Few industrials are as vitally affected by an increase in the total export trade of the United States as manufacturers of paper and paper products, according to Dr. Julius Klein, Director of the Bureau of Foreign and Domestic Commerce. On every sale abroad, no matter what the commodity, there is some sort of consumption of paper either in the way of containers, wrapping or packing or for correspondence, and advertising literature. It would be well nigh impossible to estimate this consumption, which anyway would be listed under domestic consumption, but on careful analysis, it is directly attributable to foreign commerce.

Setting aside this amount, the actual recorded exports of paper and paper products, exclusive of printed matter, amounted to twenty-four and a half million dollars in 1923, an increase of more than one million dollars over the exports of these commodities in 1922 and more than double those of 1913. In the first three-quarters of 1924 the exports amounted to $18,348,018. In volume the export trade in paper and paper products, alone, represents a total of about 140,000 tons each year or approximately 2 per cent of the total annual production.

But to this should be added exports of printed matter, which amounted in 1923 to $17,874,000, or in volume about 25,000 tons of paper, and in the first three-quarters of 1924 to $14,355,985. Including printed matter, the total exportation of paper and paper products during the first three-quarters of 1924 amounted to 119,088 tons, with a value of $32,704,000.

The sale of paper, either at home or abroad, is so highly competitive that constant and specialized study of both the commodity and the market is necessary. It is not practicable for every manufacturer, or any considerable number of them, to maintain representatives throughout the world whose duty it is to watch changing conditions in each country and report whenever the situation seems to warrant a special sales effort or warn against developments that threaten commercial stability. In this connection lies the Bureau's chief value to the paper industry.

The Bureau has its scouts abroad throughout the world, and from the reports sent in by these representatives, it is able to distribute to the industry timely and reliable information concerning existing conditions or developments and special circumstances that give rise to new opportunities. A distribution feature recently inaugurated by the Paper Division of the Bureau of special assistance and interest to the industry is a weekly news letter containing a summary of the more important events reported during the week. These news letters are supplemented by mimeographed bulletins issued as often as circumstances require, and containing brief discussions of current events in some definite market or competing country, based on recent reports received from the territory concerned.

During recent months, close attention has been given by the Paper Division to conditions existing in the paper industries of these countries which are the chief competitors of American mills in foreign market.

The paper industry has held its own in foreign markets during a time of world readjustment. The trade has been won and held under highly competitive conditions and represents sound development.

Further readjustments of international values, now taking place, should open up new opportunities for greater expansion.

MANUFACTURING IN 1923

Manufactures turned out by the factories of the United States in 1923 seem likely to aggregate $60,000,000,000, or 2½ times as much as in 1914, five times as much as in 1900 and ten times as much as in 1880. This estimate, says The National City Bank of New York, is based upon an analysis of the 1923 census returns on 109 industries. The 1923 returns of these 109 industries show their output 52 per cent. greater in value than in their returns of 1921, while the estimated number of wage earners shows an increase of 34 per cent. The National City Bank estimates that the 1923 output of manufactures as a whole will show a total of approximately $60,000,000,000, against $24,000,000,000 in 1914, $11,500,000,000 by the census of 1900, $5,500,000,000 in that of 1880, and $1,019,000,000 in 1850, our first official record of manufactures produced in the United States.

The official valuation of the outturn of the 109 classes of articles for which 1923 reports haye been received aggregates, $10,027,000,000, against $6,596,000,000 for the same articles in 1921, and $9,196,000,000 for the same articles in the abnormally high year 1919. Another evidence of increased activity in 1923 is found in the fact that the estimated number of wage earners employed in the 109 industries thus far included in the returns of 1923 is stated by the census reports at 1,335,289, against 993,328 in 1921 and 1,268,263 in the same industries in 1919, the increase in value of outturn of the 109 industries in 1923, when compared with figures for the same industries in 1921, being 52 per cent., and of wage earners 34 per cent., the Census Bureau figures for wage earners being officially stated as "averages based on the number employed on the 15th of each month."

This growth in our outturn of manufactures, from $1,019,000,000 in 1850 to an estimated $60,000,000,000 in 1923, suggests, says the National City Bank, a comparison of the exports of manufactures in 1923 with those of 1850. The official record of manufactures exported in 1850 is $23,224,000 and in 1923 $2,042,000,000. The value of the manufactures exported in 1923 was approximately eighty-eight times as much as in 1850, while the value of production in 1923 is apparently about fifty-eight times as much as in 1850, suggesting that the manufactures of the country are increasing the shore of their outturn produced for foreign markets. The share which manufactures form of the total domestic exports has advanced from 17 per cent. in 1850 to 49 per cent. in 1923, 51 per cent. in the fiscal year 1924, and 55 per cent. in the nine months ending with September, 1924.

Bible Paper Defined

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., December 17, 1924.—So called "bible paper" will get a judicial meaning if the desire of the Treasury Department is carried out. For the purposes of getting a definition the department has ruled that paper as bible paper shall pay a duty of 4 cents per pound and 15 per cent. ad valorem under paragraph 1304 of the Tafiff Act. In this connection Assistant Secretary of the Treasury Moss has sent the following communication to the United States Appraiser of Merchandise at Boston:

"The Department is in receipt of a communication from the Director of the Special Agency Service inviting attention to a variance of opinion between your office and the Appraiser at New York in the classification of a thin transparent printing paper, which in the opinion of the Appraiser at New York is dutiable as bible printing paper at the rate of 4 cents per pound and 15 per cent. ad valorem under paragraph 1304 of the tariff act of 1922, whereas in your opinion the paper is dutiable as printing paper at the rate of ¼ cent per pound plus 10 per cent. ad valorem under paragraph 1301 of the said act.

In your report to the Director of the Special Agency Service you state that you do not consider the paper bible printing paper for the reason that it is not opaque which should be the case with bible printing paper, and also for the reason that the filler used is less than 12 per cent. of the volume by weight of the paper whereas bible printing paper contains from 18 to 20 per cent. filler. Moreover you state that paper the subject of this correspondence is not used for the printing of bibles but for the printing of calendars.

In reply I have to advise you that the Department is in receipt of a letter from the Appraiser at New York in which he states that he considers the paper in question a bible paper of a cheap grade, rather heavily sized, highly finished, and with simply a lower degree of opacity than that required in a high-grade bible paper. The Appraiser reports that an investigation in the trade develops that there is no recognized practice requiring bible paper to contain from 18 to 20 per cent. filler of the volume by weight of the paper and that the loading may be anything that the mill deems necessary to introduce providing the final printed result is satisfactory to the buyer, and as the analysis of the paper represented by the sample submitted shows that the ash is 9.3 per cent., the weight 17.5 pounds, 20 inches by 30 inches, 480 sheets, with a reasonable degree of opacity when printed on both sides of the sheet, he expressed the opinion that the paper is properly dutiable as bible paper at 4 cents per pound and 15 per cent. ad valorem under paragraph 1304 of the tariff act.

While the Department recognizes that the proper classification of merchandise of the character under consideration is not free from doubt it believes that there should be a judicial ruling as to the meaning of the term "bible paper" and you are accordingly instructed to assess duty upon such paper as bible paper under paragraph 1304 of the tariff act at the rate of 4 cents per pound and 15 per cent. ad valorem.

Swedish Mills Well Sold Up

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., December 17, 1924.—Reliable trade sources state that the Swedish mills have sold substantially all chemical pulp available for shipment before the close of the season and that only small lots are now being sold according to a report to the Paper Division of the Department of Commerce from American Consul Leonard at Stockholm.

The total exports of wood pulp, says the report, during the first nine months of this year were 924,290 metric tons, of which 308,217 tons went to Great Britain, 284,889 to the United States and 103,799 tons to France. These are increases of 68.5 per cent. 82 per cent. and 24 per cent. respectively over the same period of last year.

Forests and Industries of Northern New York

TROY, N. Y., December 15, 1924.—"The destructive forest fires which recently threatened the remaining forests in New York and New Jersey is strong evidence of the need of better methods of forest fire prevention, if we are to retain our inheritance of wooded hills and forests," said Dr. Hugh P. Baker, Executive Secretary of the American Paper and Pulp Association, at the luncheon of the Rotary Club at Troy today.

"Forest fires are the most destructive of the agencies which have brought about the disappearance of our forests. The Governor of the State acted wisely this Fall in closing the state's forests to hunters, and he should be given greater power to carry out recommendations of the Conservation Commission as to protecting the forests of the state by closing the forests against hunters and campers during the fire dangerous seasons, particularly. According to the U. S. Forest Service approximately 7,000,000 acres of forest land in the United States are being burned over annually. This is not all standing timber of course, but it is land capable of producing valuable forests. Every time these forest lands burn over their potential value for the production of new forests is decreased.

"The citizenship of the nation must be aroused to the need for more effective protection of our forests and forest lands from fire. The paper industry, as a wood-using industry, is vitally concerned not only with the protection of forests from fire but with the production of new forests. The industry has taken aggressive leadership toward securing national forestry legislation which will encourage the cooperation of the private owners with government agencies, both in fire prevention and in forest renewal.

"Fire is not the only destructive agency in the forest. A wrong form of taxation has been another destructive agency, for instead of an annual tax upon growing forests there should be a nominal land tax to be followed by a yield tax when the crop is cut. In other words, forest land should be taxed the same as agricultural land. Only as forests are protected from fire and the right form of taxation applied can private owners afford to grow forests.

"With New York a leader in industrial activity today, everyone interested in any way in the forest, whether that interest has to do with the wood produced from the forest or with the water-conserving power of the forest, or its fish and game and recreational value, must join aggressively in the campaign for forest protection and development."

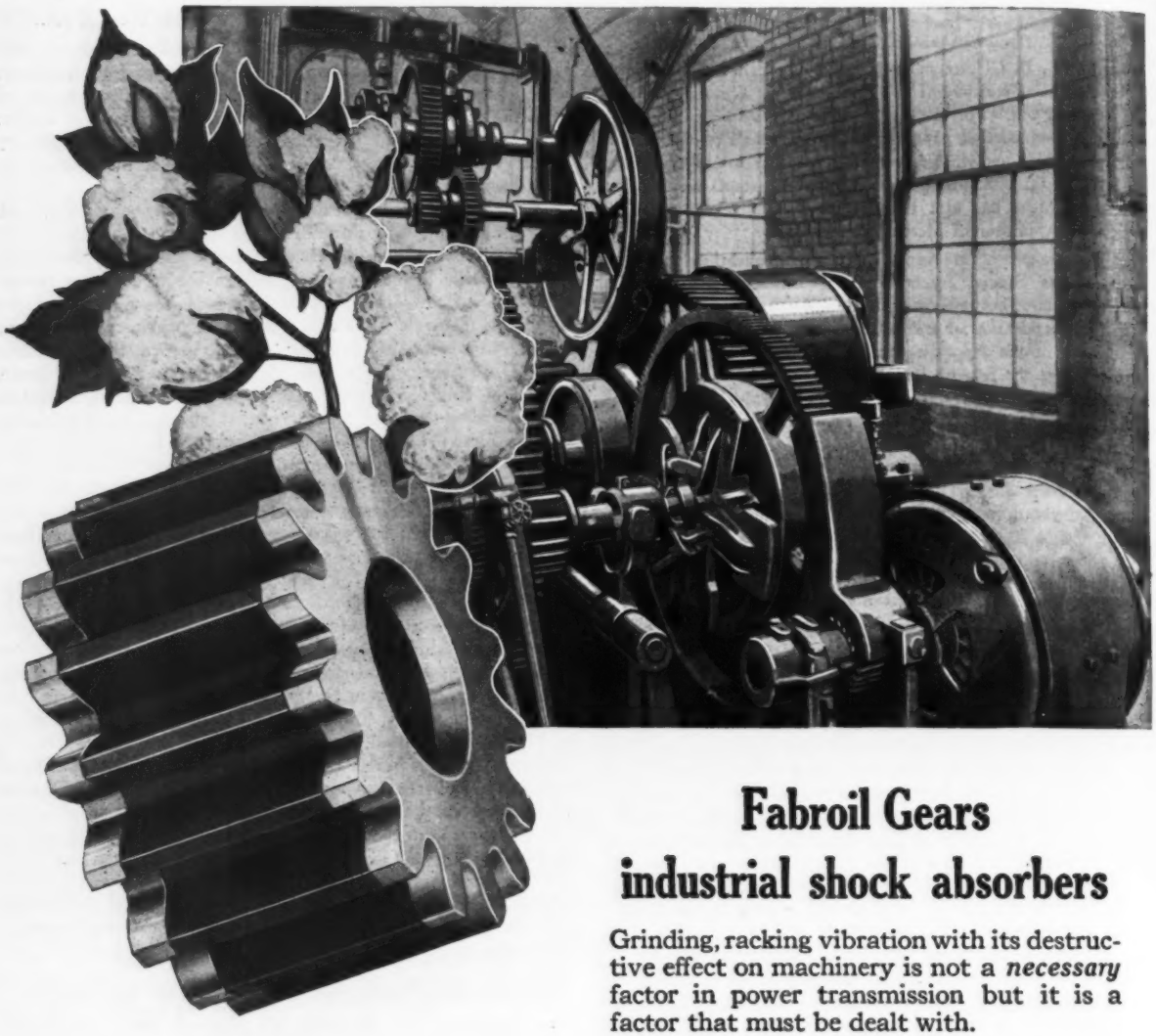
Employment Managers Club Meets at Kalamazoo

KALAMAZOO, Mich., December 15, 1924.—A general discussion of methods of handling employees and securing the proper co-operation between corporations and their men formed the subject of an interesting program offered at the Thursday evening meeting of the Employment Managers Club, which met in the community house at Parchment.

Luther Parker, superintendent of the Superior division of the Byrant Paper Company and R. A. Hayward, general manager of the Kalamazoo Vegetable Parchment Company, gave introductory talks and then the subject was thrown open for a general round table discussion. It was pointed out forcibly that real interest in one's work is only possible through a correct understanding between employers and employees. Supper was served preceding the program.

Earlville Box Co. to Double Capacity

EARLVILLE, N. Y., December 15, 1924.—Ground has been broken for the foundation for a large new building for the Earlville Paper Box Company, which will practically double the capacity of the plant. The new building will stand 12 feet to the east of the present factory and will be 50x130 feet, two stories high, with a fire wall separating the new and old buildings. At present the plant can operate at maximum capacity with about 100 hands, but with additional building the force can be doubled if necessary.



Fabroil Gears
industrial shock absorbers

Grinding, racking vibration with its destructive effect on machinery is not a *necessary* factor in power transmission but it is a factor that must be dealt with.

It is perfectly practicable to absorb vibration and cushion shocks with Fabroil Gears, manufactured by the General Electric Company for industrial service. These gears, made of layers of cotton under pressure, are resilient, silent and durable.

Out-wearing cast iron, Fabroil Gears will stand up under continuous service and may be stored for years without deterioration.

Textoil Board is a similar product chiefly of interest to machine manufacturers who desire to cut their own gears for less heavy service.

Descriptive literature may be obtained from any G-E office.

Fabroil Gears, produced by the General Electric Company after careful experimentation and tests, are made from layers of cotton compressed between steel shrouds. They are unaffected by oil, water, dryness, heat or cold and are extremely durable and resilient.

Textoil Board is made up of layers of cotton canvas impregnated with a viscous compound which renders the resultant product a homogeneous substance possessing the same properties as Fabroil but without the added strength of the metal shrouds.

Each product affords entire satisfaction in the service for which it is suited.

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Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

WASTE HEAT IN PULP AND PAPER MILLS*

By Dr. von Lassberg

(Concluded from last week)

There are various heat values that are allowed to go to waste in the operation of pulp digesters. There is to be sure the heat that is liberated through the reduction in pressure in the apparatus, the heat that goes to waste in the waste liquors, that which goes to waste in the form of the hot pulp and in the liquor that adheres to the pulp, the heat that is lost in the waste gases and then that which is lost in the condensate from Mitscherlich digesters.

Heat Liberated by Pressure Reduction

The heat released by the reduction of the pressure in the digester after the digester operation is concluded is an important factor. This heat is liberated when the digested pulp or the waste liquor is permitted to come in contact with the air after coming from the higher pressure conditions that exist within the interior of the digester. In other words the heat in question is that set free when the hot contents of the digester are brought from the internal pressure to atmospheric pressure.

This loss of heat takes place under all conditions, and it depends on the manner in which the pressure is reduced and how the contents are removed from the digester. Hence according to whether the pressure in the digester is released entirely through the relief gas outlet or whether the liquor is removed while a certain pressure still exists in the apparatus, or whether the digester is blown, this heat, released by pressure reduction, will be found in part in the relief gas outlet, in part at the point where the waste liquor comes in contact with the air, and in part in the outlet pipes of the blow pit.

The Nature of This Heat

The heat released by pressure reduction is first seen to be set free at the point when the pressure is reduced in the digester and the end temperature in it corresponds to the saturation temperature of the steam. From this point on the digester acts like a Ruths accumulator, as during the pressure reduction the heat of the liquid is released, which has the effect of automatically and spontaneously generating steam from the contents of the digester. It is possible to determine the starting point for the generation of steam in the digester through the reduction of the pressure without any further difficulty, when, as is seen in figure 7, the curve of the digestion temperature is made to intersect the curve of the saturation temperature.

The point of intersection, thus determined, gives the pressure at which heat and therewith steam will be set free from the contents of the digester. The amount of the heat thus set free per kilogram of liquid can be read off without any difficulty by measuring the distance that is included between the digester temperature curve and the saturation curve. For example, a and b in the figure represents such magnitudes.

Physical Basis of the Process

The physical basis of the entire process is simply that the heat in the liquor may be determined from any steam table, decreases as the pressure decreases, so that the differential heat value in the liquid

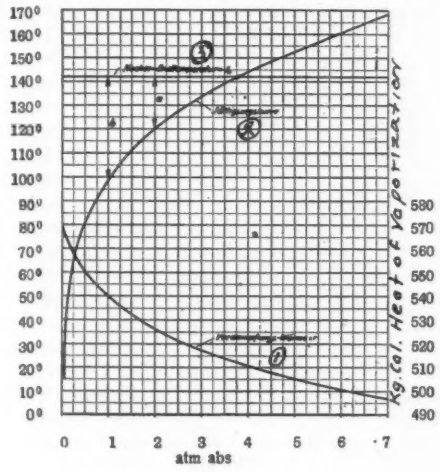

FIG. 7

Heat Developed on Drop of Pressure.

1—Vaporization Heat Curve.
2—Saturation Curve.
3—Digester—Final Temperature Curve.

corresponding to a certain drop in the pressure must be set free. For example if p_y is the final pressure in the digester, which is equal to 4.5 atmospheres, if t_x is the final temperature in the digester which is equal to 142 degrees C, then at the moment when, by blowing down of the digester, the pressure p_y, which corresponds to a saturation temperature of 142 degrees, is attained, which takes place at 3.8 atmospheres, steam is generated. Until the pressure falls to that

* Papierfabricant, 1924, 461-472.

of the atmosphere, there will be released the following quantity of heat:

$q_y - q_o$ equals 144.2 — 99.6 or 44.6 kilogram calories per kilogram of water. These figures are the heat in the liquor corresponding to the different pressures. In order to determine the relative magnitude of the heat released by the reduction in pressure, it is necessary to imagine that for example 1 kilogram of steam which is allowed to expand from 15 atmospheres and 300 degrees C to 2 atmospheres with the liberation of a certain amount of energy liberates approximately 70 kilogram calories of heat. Hence in the case in question, the heat that is liberated by the reduction of the pressure amounts to in round number 45 kilogram calories which is more than half of the figure mentioned. The often mentioned paradoxical situation may be referred to in this case as well, which means that the greatest of care is taken to save heat in the boiler house and in the power plant, which is of course right and should be practiced all the time, and then again a great amount of heat is allowed to go to waste in its entirety in the form of clouds of steam which escape from the various apparatus in the manufacturing plant proper.

Evaluation of This Heat

Through the heat that is set free in this manner it is possible to effect the evaporation of 0.085 kilograms of steam per kilogram of the liquor:

In the above equation 525.45 is the average latent heat of vaporization of the steam between the two pressures that are being considered in this case. The latent heat of vaporization are shown in figure 7. If the calculation is carried out with A liters of fresh liquor on the basis of 1 kilogram of absolutely dry weight of pulp, then when A is equal to 8 liters, the following equation may be written:

A. $(q_y - q_o)$ or 356.8 kilogram calories per kilogram of pulp, or

A. $\frac{(q_y - q_o)}{(r_y \quad r_o)}$ or 0.680 kilograms of steam released by reduction of pressure per kilogram of pulp.

In the case of a normal digestion wherein the yield of pulp is 20 tons the amount of heat or the quantity of steam that is evaporated amounts to 8,690,400 kilogram calories or 13,600 kilograms of steam.

Nature of the Process

The entire process is nothing more than an after-evaporation on a large scale and of the same nature that takes place when condensed water comes in contact with the atmosphere, flowing out of the condensers. The higher the pressure to which the condensate is subjected to in the condenser, the greater will be the loss of heat through vaporization of a quantity of the water when the latter comes in contact with the atmosphere. The fact that the large losses were suffered by not using the heat that was released through the reduction of the pressure, which are for the most part losses occasioned by after-vaporization, was not realized for a long time. Even at the present time these losses are considerably under-estimated. The vapors released as the pressure is reduced have been generally precipitated, with entire loss of their heat content, in the relief gas coolers, or else these vapors have been commonly allowed to escape into the air in the form of great clouds of steam. Not only was heat lost in this manner but the strongly acid character of these vapors resulted in a rather rapid destruction of apparatus.

Heat in the Waste Liquor

The thermal conditions surrounding the heat that is carried in the waste liquors are very simple. The temperature of these liquors as they emerge from the digester is approximately 100 degrees C. From 8 liters of the fresh liquor, which has been estimated to be required for the digestion of 1 kilogram of pulp, about 5.5 liters of waste liquor are obtained as a general rule. The remainder of the liquor remains with the pulp and goes along with it to the blow pits. It is only the heat contained in the waste liquor mass proper that can be considered from the standpoint of its utilization. It has been calculated that for every kilogram of pulp made there will be 550 kilogram calories of heat contained in usable form in the waste liquor.

Utilization of the Heat

Alcohol plants, waste liquor evaporating installations and waste liquor combustion installation, in which the conservation of heat is a very important and complex problem and in which waste heat from many different sources are made use of, should provide a step in the process for the treatment of these hot liquors. In order to save this heat along with the rest of the waste heat that is taken care of around the plant, it need just be mentioned that in the case of an alcohol plant the heat in the waste liquor, as it comes out of the digester, is rendered useful in the greater part for the neutralization operation, and on the other hand that in place of it the heat in the residual liquors from alcohol manufacture is available for further use.

Heat in the Gases from Digestion

The gases from the digestion operation contain sulphur dioxide and steam, the latter being evolved during the reduction of the pressure. In making calculations it is advisable to consider the steam and the sulphur dioxide separately; the steam evolved by pressure reduction has been described above. The pure sulphur dioxide gas freed from its steam content yield but little heat in the relief gas coolers, for the reason that the heat of vaporization of the sulphur dioxide, whose boiling point is 10 degrees C at about 3 atmospheres pressure, cannot be recovered. The gas is simply cooled down, and furthermore inasmuch as the specific heat of the gas is only 0.153, which is very small, the yield of recovered heat is very small. If the calculation is made on the basis of 11 kilograms of sulphur per 100 kilograms of pulp with about a 30 per cent sulphur recovery and with a cooling down of the sulphur gases from a temperature of 140 degrees C to 40 degrees C, then it is found that for every kilogram of the pulp made there will be released about 1 kilogram calories of heat in the sulphur dioxide gas.

The large amount of heat recovered in the cooling water coming from relief gas coolers is derived from the heat in the relief liquor and the heat of vaporization in the steam evolved on reduction of the pressure. While the gas is led away from the digester contains at all times a little sulphur dioxide in admixture with water and steam, it is possible to consider the heat recoverable from these gases in the manner described above.

Heating Up the Fresh Liquor

A very important means of economizing on heat is to use the waste heat to heat up the fresh liquor before it is introduced into the digesters. When consideration is taken of the fact that a large reduction can be effected in the time of digestion and therewith in the production of the apparatus, in the amount of heat required for raising the temperature of the digestion liquor to the proper point and therewith in the consumption of steam throughout the entire process, if the fresh digestion liquor is first warmed up by the waste heat from the digester, then it will be evident that very great advantages are gained not only in heat economy but in other ways as well by recovering the heat in the steam released by pressure reduction and in the waste liquor itself, whether these thermal values are recovered alone or together, and by using them to heat up the fresh liquor inside or outside the digester.

At the same time when this practice is carried out it is found that the peak demands for steam are considerably reduced. Furthermore it is found that when steam accumulators are used for storing steam and for releasing it when the peak demands occur, which are of most severe kind in the digester operation, the size of these accumulators may be materially reduced as the amount of steam required under these conditions is decreased because of the preliminary heating of the liquor. It is also noted that under these conditions not only is the operation of the accumulators more uniform but the firing of the boilers in the power house also derives some benefit from such practice. This is an important matter for it has

been pointed out often that when the boilers in the power plant are being forced at certain times and then have to be shut down entirely at other times, the efficiency of steam production is very poor.

Systems Used for Heating Up the Fresh Liquor

It is by no means new to recover heat by heating up fresh digestion liquored but it is a fact that the real value of the undertaking is not clearly understood nor appreciated, nor practiced as widely as it should be. Different paper mills have devised their own systems for heating the fresh liquor and have been very secretive about their efforts along these lines. However it is only in a very few paper mills that preliminary heating of the fresh liquor is practiced, in spite of the great advantages that are known to be possible from such heat recovery.

A small amount of heat used in the warming up of fresh digestion liquor to a temperature in the neighborhood of 25 degrees C in general is accomplished by means of the relief gas that is passed into the fresh liquor tank for the purpose of increasing the concentration of the tower liquor. The amount of heat that is required to raise the temperature of the fresh digestion liquor from 25 to 75 degrees C, a difference of 50 degrees C, can be accomplished by the heat that may be recovered from the digester.

Calculation of Heat Required

Thus for the manufacture of 1 kilogram of pulp there will be required in the neighborhood of 8 kilograms of fresh liquor. Hence in order to heat up this quantity of fresh liquor from 25 to 75 degrees C, there are required for each kilogram of pulp manufactured in the neighborhood of 400 kilogram calories. The specific heat of the fresh digestion liquor may be considered as unity. It is 0.98 in actual, more accurate figures.

In what has been given above the heat released by the reduction of pressure in the digester has been calculated to be 357 kilogram calories. This is naturally a function of the temperature conditions within the digester and increases as the temperature of the digester increases. The amount of heat required for heating up the fresh liquor, as calculated above, and which cannot be obtained from the heat liberated during the reduction of the pressure of the digester—this quantity of heat amounts to between 40 and 50 kilogram calories—can be obtained from the hot waste liquor, even when this liquor is sent into the alcohol plant for manufacture into spirits. For the temperature of this liquor need only be reduced at a maximum from 8 to 10 degrees C in order to yield up the required amount of heat.

Thus it is possible to utilize the heat set free on reducing the pressure of the digester almost entirely, with but a small loss, for heating up the fresh digestion liquor. This can be done in a direct manner by utilizing the heat in liquor of digestion wth a flow of liquor from one digester into the other and by using the steam developed in the reduction of the pressure in part or by leading the steam or its condensate which is obtained into the liquor. Then again the liquor may be heated up by making it come in contact with the hot waste liquors and the steam produced during the pressure reduction operation, the contact taking place in the usual type of heat interchanging apparatus. The difficulty in the entire operation lies in the fact that the fresh digestion liquor, must be heated up under a high pressure in order to avoid its losing any of its sulphur dioxide content. Furthermore, it is necessary to work with large volumes of liquor and because of the constitution of fresh liquor and of the waste liquor as well, there are rather difficult problems that have to be solved in regard to the materials than are employed in the construction of the apparatus. The liquors, as is known, will corrode the metal unless the proper precautions are taken.

General Principles of the Liquor Heating Operation

There are quite a large number of patents covering the subject of the utilization of waste heat in the paper mill, particualrly in the digester operation, for heating up the fresh digestion liquor used in the manufacture of paper pulp. All these processes may be divided into the following five classes which clearly differentiates between them.

1. The so-called digestion running the liquor from one digester to the other. In this process a certain quantity of the liquor is taken from one digester at a temperature of 120 to 130 degrees C and is then filled into a digester which is partially charged with fresh digestion liquor.

2. The processes in which the steam developed by the reduction of the pressure is used not in the liquor recovery tanks, but is used for heating up digesters charged with fresh digestion liquor. The steam is blown into these digesters. This is the so-called Decker process.

3. The processes in which the heat developed during the reduction of the pressure in the digester and that contained in the relief gas are rendered ulitizable by leading it directly into contact with the fresh digestion liquor. In this case of course the operations are carried out in closed tanks provided with a gas space above the surface of the liquor.

4. The processes in which the fresh digestion liquor is heated up for the most part by indirect contact with the steam generated during the pressure reduction process. This operation is carried out in systems located as a general rule over the digesters.

5. The processes in which the fresh digestion liquor of very high concentration is introduced into the digester. To these highly concentrated liquors there is then added superheated water under pressure, which has been heated to the desired tmperature by the waste heat recovered from the digester in various forms. In this case of course the concentration of the liquor is considerably reduced by the admixture of hot water with it.

Differentiation of the Five Fundamental Processes

There is a fundamental difference between processes 1 and 2 from processes 3, 4 and 5. This difference lies in the fact that in the first process the fresh digestion liquors are heated up by means of the waste heat derived from a digester that has been operating for some time or whose operation is completed and the heating is accomplished in another digester which contains the liquor while in the other processes the heating of the fresh digestion liquor is accomplished in apparatus not connected with the digesters, but designed specially for this purpose.

Processes 1 and 2 have the distinct and important disadvantage that they are intimately related with the digestion operation and are dependent on the use of digesters for heating operations, although primarily designed for the manufacture of paper pulp. This then means that when the digesters are being used for heating up the fresh digestion liquor, they cannot be used for digestion purposes which entails a certain amount of delay in the plant operations. In order to arrange the digestion operations so that a digester will always be free for use in heating up the fresh digester liquor a considerable amount of manipulation has to be done and sometimes in spite of the best efforts to arrange the operations so that they do not conflict with one another, it will happen that eiher one or the other, either digestion or heating of the fresh digestion liquor, will have to give way for the other. On the other hand these processes have the important advantage in that they do not require the installation of the rather large apparatus that would be required to heat the large volumes of fresh liquors that are employed in the pulp making operations. On the other hand processes 3, 4 and 5, in which the heating is conducted in apparatus separate from the digesters, have the advantage of not interfering in any way with the normal course of the digestion operations and render available for the heating operation the heat contained in waste liquors, etc. for the direct production of hot fresh liquor in cases 3 and 4, and of hot water under pressure in case 5.

Because of the great advantages to be gained by the use of these different heat recovery processes, it is to be expcted that they will

gradually become more popular among paper and pulp mills, in spite of the difficulties that surround their use, than has appeared so far.

Use of Condensates

The use of the condensates from the manufacture of paper and pulp for boiler feed water is generally accepted to be of value from a technical standpoint. To complete the calculations that have been given it may be stated that the condensates from the drying cylinders, when 2.2 kilograms of steam are used per kilogram of pulp, contain 220 kilogram calories and that from the Mitscherlick digester about 250 kilogram calories. In the Rittner-Kellner digester the condensate is mixed with the liquor and the mixture forms a dilute waste liquor. The condensate from the condenser in which the waste steam vapors are condensed is treated in that apparatus. The use of the condensates does not involve any great difficulties, with the exception of the condensate from the Mitscherlich digester, in which there is always present the danger that it may contain acid. Hence it is only when the greatest of care is taken to remove the acidity of this liquor that it is safe to use it in feeding the boilers.

In this connection it may be mentioned that there has been devised a new apparatus, which makes it certain that the condensate obtained from these vapors is absolutely free from acid and which at the same time recovers any lost heat in the after-vaporization process. The condensate of the steam used for distillation purposes in the alcohol plant is found in the residual liquors recovered from the distillation process. The condensate from the Rittner-Kellner digester and that from the alcohol plant must be mixed with fresh water and then may be fed to the boilers. The amount of water that these condensates represent is 3.5 kilograms per kilogram of pulp manufactured.

Heat Losses in the Pyrites Gases

A few words will be said regarding the heat losses in the gases from the pyrites ovens, which of course pertains only to these plants that use pyrites for the generation of sulphur dioxide gas and its subsequent conversion into sulphite liquor. In the case of a 7 ton pyrites furnace the distribution of the heat is as follows:

1.	In the roast gases	4,470,000 kilogram calories
2.	Loss by burning	190.000
3.	Conduction and radiation losses	5,380,000
4.	Preliminary drying of the pyrites	930.000
5.	Hot waste air	960,000
6.	Other losses	440.000
		12,360,000 kilogram calories

Most of these heat values are practically unusable, and the most promising is the heat that is contained in the gases which leave the furnace at a temperature of 610 degrees C. This calculated on the pulp manufactured amount to 150 kilogram calories per kilogram of pulp.

Recovery of Heat from Sulphur Gases

A process has recently been developed for recovering the heat values contained in the sulphur gases derived not only from furnaces in which pyrites is burned but also from those in which sulphur is burned to give sulphur dioxide. The heat in these gases, which attain temperatures of 500 to 600 degrees C, is used for preliminary heating of the liquors used in the digestion process. In this process the temperature of the gas is 500 degrees C as they enter the heat recovery apparatus and it contains 118 kilogram calories, calculated on the basis of 1 kilogram of pulp made. This heat is applied to useful purpose in heating up the fresh digestion liquor which makes it possible to raise the temperature of this liquor, in an amount corresponding to 1 kilogram of pulp manufactured, by about 12.5 degrees C.

But the use of all the heat values that have been mentioned is a difficult matter for a number of good reasons. In the first place the heat, as in the case of the moist steam and air from the driers on paper and pulp machine, is contained in a very diluted mixture of gases which contain a considerable proportion of air and hence the temperature of the mixture is rather low. Again the heat is contained in water, as is the case in the waste liquor, which means that another set of difficult conditions arise and surround the recovery of this heat. Then again the heat values are released much in the same manner as when the contents of the digester are relieved from the pressure prevalent during the digestion operation, with the result that a large amount of heat is liberated within a small period of time. Then again there is the condition of the large volume of the material that carried the heat and which has a comparatively low temperature, which condition is very difficult to overcome.

Difficulties in Using the Heat Values

Furthermore the waste heat values liberated from the digester contain more or less sulphur dioxide and therefore make it necessary to use the utmost care in the handling of the materials involved and in the construction of apparatus in which they are handled and contained. It is very necessary that the materials used in the construction be able to withstand the corrosive action of the acid constituents of the liquors and gases. In fact it may be said that the utilization of the waste heat is easy only under the condition where the liquor itself can be used in the original container without having to be removed to some other place. For example this may be exemplified in the case of the condensates obtained from various sources, from the condensation of the steam set free when the pressure is reduced in the digester, which are mixed directly with the fresh digestion liquor. But all the other processes of utilization of the waste heat are more or less difficult to carry out, and this is particularly so when the temperature differential between the hot and the cold bodies is inconsiderable, and furthermore when the mass of material that has to be handled in the operation is large. Of course then again there is the high cost of building apparatus for handling these acid liquors and gases entailed by the necessity of lining them with acid-proof linings of suitable character. It is of course possible to alleviate these difficult conditions by building apparatus which need not be of large volume but in which the heat interchanging process takes place by passing the hot liquors many times through the apparatus in a continuous manner. The principal advantage gained in such a system is the reduction of the size of the apparatus.

Waste Heat in Flue Gases

The subject of waste heat recovery in the paper mill would not be complete without some mention of the waste heat contained in the flue gases from the boiler operation. It is to be noticed that all the waste heat values that have been mentioned and discussed are those derived from the manufacturing process in the strictest sense of the word. The heat in the flue gases is considerable but in spite of this fact it is likely that this heat has been less put to useful purpose than that recovered from other parts of the paper making plant. It has been mentioned that the waste gases that are derived from paper and pulp mills, in which the feed water can be derived entirely from the condensates—as in the case of mills that manufacture paper only, or from the condensates in part when pulp is also made in the plant, and where the condensate in the first place has a temperature of over 90 degrees C and in the second case of about 60 degrees C, a certain amount of waste heat is utilized in the power plant by heating up the feed water in the economizer to a temperature of approximately 130 to 140 degrees C. From this fact it at once follows that in normal operations the waste gases or rather the flue gases from the boilers have sufficient heat in themselves to raise the temperature of the feedwater from the initial point of 40 to 50 degrees C to the final temperature at which it is fed into the boilers. Such a practice may be followed out with good results.

Then again in those paper mills that do not produce the power they require for their operations by the use of high pressure steam, but are also able to generate power from low pressure steam in turbines and then condense the vapors in surface condensers, the heating of the feed water by means of the exhaust steam is a process which is being introduced more and more. This method of utilizing waste heat, as it recovers the heat of vaporization contained in the exhaust steam from the turbines, in place of allowing it to go to waste in the condensers, is much more economical and feasible than

the method of heating up the feed water by means of the heat contained in the flue gases. It is found that in the case where the boilers are employed in the making of high pressure steam, the economy of this heat recovery process is particularly high.

When the waste heat in the flue gases are used either in their entirety or in part for heating up feed water, another use must be found for the waste heat from other sources in the plant. A very important use for the flue gases is also in heating up the air supplied to the furnaces. The operation of the boilers with air which has been previously heated up with waste heat has been found to have many advantages. It is said that it has been possible in operating the boilers in this way to save as much as 5 to 14 per cent in fuel, even when a lower grade of fuel is used.

Thus there is presented the possibility of using the waste heat in the boiler plant in a way which gives rise to many important advantages. Both the feed water and the air used in the combustion of the fuel in the grates and in the combustion chambers may be preheated and a considerable saving in fuel occasioned thereby.

Résumé of Waste Heat in the Paper and Pulp Mill

In order that the magnitude and the importance of the different kinds of waste heat found in the average paper and pulp mill may be brought vividly to the attention of the paper man, the following tabulation is given in which there is a resume of all these heat values and the sources from which they are derived. The figures are given in absolute terms and in percentages of a total and are all based on 1 kilogram of the finished pulp, absolutely dry weight, the mill working without an alcohol recovery installation.

Waste heat derived from	Quantity of heat in kilogram calories	Kilogram calories total	Per cent	Per cent total
1. Steam in the vapors from the driers	840	....	30.4	....
2. Air in the vapors from the driers	210	....	7.6	....
3. Stock behind the machine	45	....	1.64	....
4. Condensate from the drier part of the machines	220	1,315	7.96	47.60
5. Steam released when the pressure is reduced in the digesters	357	....	12.93	....
6. Heat in the waste liquor	550	....	19.92	....
7. Waste liquor in the stock	250	....	9.06	....
8. Stock in the pit	30	....	1.43	....
9. Condensate from the digestion operation	250	1,437	9.06	52.40
	2,752	2,752	100.00	100.00

Discussion of Tabulation

From this tabulation it may be concluded without any considerable study what affect the individual heat values wasted in the different stages of the pulp and paper making process has in the entire picture of the heat recovery problem. If the heat in the last stage is not in the form of condensate, then it is in the form of waste liquor and in a slightly less amount. The heat contained in the relief gas may be overlooked in this consideration.

If for example there are rendered available for the digestion and the drying operation a total of 4.7 kilograms of steam on the average with a heat content of approximately 660 kilogram calories per kilogram of steam then the total amount of heat fed into the plant is 3100 kilogram calories per kilogram of pulp manufactured. Of this amount about 11 per cent, a small amount is lost by radiation, heat for warming up the brickwork and masonry buildings of the apparatus employed in this plant, and the rest of this heat is found in the waste heat as tabulated.

It is clear that from a theoretical basis that the entire amount of heat in the steam used for digestion and for drying purposes must be found again in the original form, since during the process this heat energy is not converted into any other form of energy. Naturally what happens is not that the amount of heat energy becomes less, which would mean that energy were destroyed, an impossible matter, but the potency of the heat energy becomes less due to the fact that it is now distributed throughout a greater mass of materials at considerable lower temperatures. The net result is that the heat cannot be put to as useful purpose as heretofore.

If the heat contained in items 3, 7 and 8 in the tabulation is considered as unavailable, then there are obtained 2427 kilograms calories of waste heat per kilogram of manufactured pulp. This amount of heat cannot of course be used in its entirety, but when only 25 percent of it is employed in a useful way, which lies within the realms of possibility, a conditions which is attained by using this heat for the raising of the temperature of the fresh digestion liquor before it is fed into the digester—an operation which takes 400 kilogram calories—and for raising the temperature of the water added to the Rittner-Kellner digesters to a temperature of approximately 80 degrees C, then there would be saved about 660 kilogram calories. Then again there remains the problem of the utilization of the heat in the flue gases.

It is this amount of heat that represents great savings in the cost of fuel which are well worth making when the year's production of pulp is figured. The author wishes to say at this point that the figures given in this article should not be considered as being absolutely definite. They should not in any way be thought as unvariable, for it is understood quite thoroughly that local conditions in the different paper and pulp mills will cause many variations in them. But they are valuable nevertheless for they afford a pretty clear picture of what the heat losses are in the various parts of the manufacturing operations carried out in the average pulp and paper mill. Furthermore they serve as a basis on which similar figures may be obtained for heat losses in plants where the conditions are quite different from those for which these figures were calculated.

General Conclusions

Then again it must be remembered that there is no sense in recovering waste heat values when there are no purpose available for which this recovered heat can be used. In general there are two principal uses to which the heat can be put which must be differentiated. First there is the production of power and then there is the use for heating in the widest sense of the word. In the pulp mill the second use is of most importance at the present time, but when the pulp mill forms a part of a paper plant in which the process of manufactured steamed mechanical pulp may also be carried out, then it is found that the production of power from the waste heat available from the various parts of the manufacturing process is also of importance. It is a fact that there are many uses to be found for the waste heat that can be recovered in the average paper mill.

For example as it is now carried out in most paper and pulp mills, all the heating done in the mill is accomplished by means of steam. There is no question but that steam heating is a very simple and convenient method in which to keep the rooms warm, but it consumes quite a large amount of coal. The heat requirements for this purpose should be taken from the waste heat that is recoverable in the plant and the room heating operations will then be carried out by means of hot air or hot water. It has been mentioned that special measures should be taken with providing the drier parts of the paper and pulp machines with warm air.

Other Uses for the Recovered Heat

Of course the use of the waste heat for heating can only be practiced in the winter months when it is cold. In order to find a more regular and continuous application of the recovered heat, other fields must be looked for, one such use is in heating up the additional water that is used particularly in the operation of the Rittner-Kellner digesters. This will consume about 160 kilogram calories per kilogram of pulp, and when an alcohol plant is connected with the paper mill the consumption of heat will rise to as high as 240 kilograms calories per kilogram of the pulp.

Another application for the waste heat which is regular in character is in heating up warm water to a temperature of approximately 70 degrees C for use in gas washers and for washing out the digesters. All the heat fed to the boiler feed water before it reaches the economizer serves to lessen the load on it, and releases the heat in the flue gases which can then be used for more

important purposes. It has been mentioned that about 400 kilogram calories of heat are used up per kilogram of pulp manufactured in heating the fresh digestion liquor.

Use of Heat in Drying Chips

One use for the recovered waste heat is in connection with the wood chips before they are fed into the digesters. In this case the heat is utilized in the form of hot air and this is used to remove the water, a large quantity of which is usually present in the wood chips. For this purpose the heat in the flue gases is also utilizable. The wood chips contain according to present practice about 25 to 30 per cent of water. In a 20 ton digester there will be on the average 58,500 kilograms of the wood chips, and of this weight then approximately 14,000 to 16,000 kilograms is water. The percentage of water contained in the wood varies according to its character. This water has the effect of diluting the digestion liquor and furthermore heat must be consumed in warming it up to the digestion temperature as well as the digestion liquor itself. The heating of approximately 15,000 kilograms of water from a temperature of 15 degrees C to one of 140 degrees C requires approximately 1,870,000 kilogram calories or in round numbers about 3,000 kilograms of steam. Calculated on the basis of 1 kilogram of manufactured pulp, this amount to 93 kilogram calories or 0.15 kilogram of steam.

In contradistinction to the advantages seemingly to be gained from a preliminary drying of the wood chips before they are fed into the digesters, due to the fact that a considerable saving in heat is effected thereby, there are various reports which have been published within recent times which appear to indicate that it is possible to pack a greater quantity of the wood chips that contain a high percentage of moisture into the digester than of the chips were first dried. Thus it appears that the yield of pulp per cubic meter of the digester contents will be greater when the wood contains a high percentage of moisture than when it does not. This is a matter which should be investigated and in spite of this indication the author firmly believes that it is more advantageous to use of dry wood in the digesters than a wet wood.

The author is convinced that when the proper steps are taken for the conservation of the heat now allowed to go to waste in paper and pulp mills particularly however in the case of pulp mills, the cost of fuel for producing steam for power and heating purposes will be reduced considerably. This of course presupposes that the proper type of apparatus is used for interchanging the heat from the hot to the cold bodies and when other means are provided for utilizing the waste heat in a continuous manner. It is natural that these savings are not to be effected in a day, but require considerable time for their working out. There are still many problems that are not solved and others whose solution does not even appear to be possible within the near future. There is much work to be, much money to be spent and there will be many errors made in undertaking to recover all the available waste heat from the pulp and paper making operations. But the results that can be obtained will more than repay for the time, trouble and expense involved in developing this project.

The different kinds of waste heat are many in a paper and pulp mill. They have been described here in detail and an attempt has been made to acquaint the paper technologist with the importance and the magnitudes of the quantity of heat that are now going to waste in the average paper and pulp mill. The methods that have been suggested for their recovery are also suggestive in their very nature. It is not intended to present them as the *sine qua non* of success in this field. They simply indicate what the author believes to be one of the many ways in which the goal can be attained.

BARK DRIERS AND REFUSE BURNING

By A. J. T. Taylor

Having read through this year's contributions on the subject of utilizing economically of wood waste as fuel, I would like to comment on two articles, both in the Paper Trade Journal, one on p. 18 Technical Section, issue of July 17, 1924, and the other on p. 99 Technical Section, issue of September 18, 1924.

My first comment is that the conveyor type of drier Fig. 1 of the first article referred to is not to my knowledge in successful operation. I would also like to point out an error into which I may personally have led Mr. Bearce and that consists of saying that the furnace is the best place to dry wet refuse. I believed so myself, up until a few months ago, but it is a mistake, for even though it were possible to carry on combustion with either wet or dry fuel at the same low percentage of excess air or high CO_2 (and this is not practicable), it would still be better to dry the fuel with waste gases and maintain a higher furnace efficiency by using the fuel so dried. A rough calculation will demonstrate this.

Assume the waste wet refuse to contain 50 per cent moisture and assume we have a commercial form of drier that using the waste gases will dry the fuel down to 20 per cent moisture, we will have increased the calorific value of the fuel by 11 per cent and the difference in the losses to the chimney between the dry and the wet fuels will be approximately another 4 per cent, making a total saving by drying 15 per cent. I fell into my error for the reason that when I wrote last on this subject a few months ago I did not know of any commercial form of drier for wood refuse that would utilize the waste gases. I have since found one, and will describe it at length whenever the editor will accept the article.

Coming to Doctor Klein's article, issue of Sept. 18, 1924. May I point out that the furnace shown Fig. 1 is not designed for wood chips or refuse but was intended for cord wood and peat in large pieces and is not recommended by the Swedish Boiler Owners Association for wood chips.

I cannot analyze Doctor Klein's figures in the second paragraph. There appears to be a figure missing from weight (56). It may have been (156) or (560). The heat values given by Doctor Klein lying between 2800 and 3400 calories are right for fuel containing between 30 per cent and 20 per cent moisture but not for undried saw mill refuse, as with 60 per cent moisture one gets down to 1400 cal.

Regarding the Bordlund Drum, Fig. 2, I have been unable to obtain any authoritative test data or to find an existing plant in operation, and from an inspection of the drawing, I can see difficulties in handling through the drum anything but small chips. Bark and sticks will certainly jam on the spokes.

Another criticism is that the heat efficiency of such an apparatus will be low, as the gases have an opportunity of short-circuiting unless absolutely obliged to pass through compact refuse before escaping.

I make these remarks after having spent three months in Sweden and on the Continent investigating the whole subject of drying wood refuse and I feel sure that the revolving drum scheme will not work out economically in practise. The only drying method I have yet seen that is a commercial success is that invented by Otto Nordstrom, Sundsvall, Sweden, and running in two plants with others building.

Southern Kraft Prices

[From our regular correspondent.]

New Orleans, La., December 13, 1924. Prices on Southern Kraft paper during the past week ranged from $4.54 to $5.20 according to reports of the Southern Kraft Manufacturers Association.

DISCUSSION OF TESTING CONDITIONS

Results Showing the Effect of Temperature and Relative Humidity on the Folding Endurance of Papers

By E. O. Reed, Chief of Tests, Government Printing Office

It is a well established fact that normal variations in the relative humidity of the atmosphere affect the results of physical tests on paper to a greater or less degree, and that certain tests for determining physical properties are valueless unless conducted under a uniform relative humidity condition. Any variation, either in the temperature or relative humidity of the atmosphere, whch affects the moisture content of paper or the physical condition of the sizing, cellulose or other constituents, will thereby affect the physical properties of the paper. The effect of humidity is more marked than that of temperature, but a careful investigation of atmospheric effects indicates that in order to secure concordant results on certain of the important physical characteristics of paper, temperature, as well as relative humidity, must be maintained within relatively narrow limits.

The folding endurance test, which is one of the most valuable tests for indicating the quality, serviceability and probable durability of paper shows the greatest variation in results due to atmospheric changes.

During the past 10 years considerable data dealing with the effects of atmospheric changes, either of temperature or humidity, upon the folding endurance test of paper have been collected by the author* and is published here in order that they may be given careful consideration in connection with paper testing and standard testing conditions.

The papers used in all of this work were selected to be representative of different furnishes for ledger, bond and wrapping papers. All bond and ledger papers used were 17 x 22, substance 20, and wrapping papers 24 x 36, substance 60. Sufficient samples of the different papers for all folding tests at the different conditions were carefully selected and cut so that the strips used at each testing condition were represenative of the entire sample. Each folding endurance test result given in the tables is the average of 20 or 30 individual tests as indicated.

All of the work presented in the following tables was done in the constant temperature and humidity room of the Bureau of Chemistry, in which the temperature was controlled within 2° F. and the relative humidity within 2 per cent, the conditions in the room being automatically maintained day and night. All strips were hung in the testing room for at least 24 hours at the designated temperature and humidity before they were tested, and the folding testers were carefully calibrated before the work was started and after its completion.

In accordance with custom the term "machine direction" is applied to the strips or test pieces cut parallel with the machine direction of the paper, while "across machine directions" is applied to strips cut across or at right angles to the machine direction of the sheet. On test pieces cut in the "machine direction" the folding test is made *across* the machine direction and *across* the fibers of the paper, and in the "across direction" the folding test is made *parallel* with the machine direction and the fibers of the paper.

Effect of Temperature

The results tabulated in Table 1, show the effect of temperature on the folding endurance of paper, the relative humidity being the same. The tests were made at temperatures of 60° F., 70° F., and 85° F., with a relative humidity of 65 per cent at all temperatures.

These results indicate that variation in temperature at the same relative humidity (65 per cent) has an effect on the folding endurance of paper, which with some papers is quite marked and with others is only slight. A rise in temperature causes a decrease in folding endurance, the effect being more marked with tests made in the machine direction than those made in the across machine direction. It will be noted that the variation in results at 60° F. and 85° F., a range of 25° F. is considerable. Even the variation in results at temperatures of 60 and 70, and 70 and 85° F. is appreciable in some instances, making necessary the choice of a definite testing temperature and its control within narrow limits. A temperature of 70° F. is the most logical from every standpoint, and from the above tests the need for controlling this temperature, at least within 5°, above or below this temperature, is shown necessary.

Table 1—Results Showing the Effect of Temerature on the Folding Endurance of Paper at the Same Relative Humidity

		Machine Direction			Across Machine Direction		
		85° F. 65% r.h.	70° F. 65% r.h.	60° F. 65% r.h.	85° F. 65% r.h.	70° F. 65% r.h.	60° F. 65% r.h.
31,249	Rag ledger	2,209	2,906	4,339	1,243	1,574	3,510
30,855	Rag ledger	1,513	1,846	2,225	688	842	896
30,857	Rag bond	1,894	2,066	2,666	645	688	1,174
30,731	Rag parchment bond	978	1,192	1,360	452	535	584
30,856	Rag sulphite bond	187	273	273	91	103	109
31,250	Chemical wood ledger	82	88	104	33	40	37
30,858	Chemical wood bond	74	71	108	43	43	61
21,904	Sulphite wrapping	768	1,495	1,426	586	1,025	1,104
38,849	Kraft wrapping.	2,324	3,529	3,695	1,681	1,799	1,981
38,850	Rope wrapping.	2,647	3,394	4,092	500	560	672

All results average of 20 tests—85°F. and 60°F.
The 70°F.—65 per cent are all averages of 30 tests, except sulphite, kraft and rope wrapping, which are averages of 20 tests each.

Effect of Relative Humidity

The results in Tables 2 and 3 show the effect of relative humidity on the folding endurance of paper. In Table 2 the average folding endurance tests of 12 papers, both in the machine and in the across machine directions at 6 different relative humidities are given. The temperature was 70° F. in all cases except at 65 per cent relative humidity, when the temperature was 65° F. The percentage increase in folding endurance at each relative humidity, based on the results at 25 per cent relative humidity, is also stated.

The tabulated results in Table 2 show very marked increases in the folding endurance in the machine direction, as the humidity increases. There is a much less, but more uniform increase in folding endurance in the across direction with the increasing relative humidity. The increase in results in the machine direction is very marked, being from 153 to 1409 per cent greater at 65 than at 25 per cent relative humidity, while the increase in results in the across machine direction is much less, being from 17 to 299 per cent through the same range. The increase between 45 and 65 per cent varied from 40 to 253 per cent in the machine direction and only from 0 to 104 per cent in the across machine direction.

In Table 3 additional data, secured in order to check the results in Table 2, and to secure information as to the effect of humidity on different kinds of paper fibers and papers of the same nature, are given. The folding endurance results on papers at 45 and 65 per cent relative humidity at the same temperature of 70° F. are given, also the percentage increase in the results at 65 over those at 45 per cent.

The results in Table 3 are of the same general character as those given in Table 2. It will be noted that the results at 65 per cent are from 73 to 749 per cent higher in the machine direction and from 0 to 330 per cent higher in the across machine direction than at 45 per cent relative humidity.

*Work done by the author while employed in the Leather and Paper Laboratory, Bureau of Chemistry, Department of Agriculture.

From the results in Table 3 the following very interesting facts are noted. The wrapping paper stocks, kraft, rope and unbleached sulphite, show a marked but not uniform increase in folding endurance at 65 per cent over the results at 45 per cent, the results increasing in the machine direction 276 per cent for kraft, 334 per cent for rope and 749 per cent for unbleached sulphite, and in the across machine direction 66 per cent for rope, 135 per cent for kraft and 330 per cent for unbleached sulphite. The increase in folding endurance on these wrapping papers is much greater than on any of the samples of ledger and bond. The 5 samples of tub-sized bond and ledger papers show considerable increase in folding endurance in the machine direction at 65 per cent over the results at 45 per cent, but the different samples do not show the same percentage increase, sample 30855 showing 175 per cent increase, sample 31249, 118 per cent, sample 30731, 124 per cent, sample 30857, 73 per cent and sample 30856, 80 per cent. In the across machine direction samples 31249, 30731 and 30856 show only 16 to 18 per cent increase, sample 30857 no increase while sample 30855 showed an increase of 72 per cent. The 2 samples of bleached sulphite bond and ledger papers show considerable increase in folding endurance in both directions but decidedly less than shown by the sulphate and unbleached sulphite wrapping papers.

From the results in these three tables the following conclusions are clearly noted:

The folding endurance of paper is materially affected in the machine direction (folded across the fibers) by the temperature and relative humidity of the atmosphere in which the tests are made. It is much less, but appreciably affected in most instances in the across machine direction (folded parallel to the fibers).

The effect of relative humidity on the folding endurance of paper is very marked.

That of temperature, which has been ignored by most previous work, is not as marked as relative humidity, but sufficient to warrant attention and demand consideration.

The relation between the folding endurance results in the machine and across machine directions on all papers varies with changes in relative humidity. In all cases (Table 2) where the folding endurance at 25 per cent relative humidity is greater in the across than in the machine direction, the difference decreases regularly with rising relative humidity until the respective order is reversed below or at 65 per cent relative humidity, at which condition the folding endurance of all papers is greater in the machine direction (Tables 2 and 3). In Table 3 it is also shown that the difference between the folding endurance results in the two directions are much less at 45 than at 65 per cent relative humidity.

Summary

From the results in the tabulations given it is shown that the folding endurance of paper is materially affected by atmospheric changes and such tests must be made under standard uniform conditions maintained within rather narrow limits.

The folding endurance of paper is materially affected in the machine and across machine directions by changes in relative humidity, the effect on the results in the across machine direction not being as great as in the machine direction.

The folding endurance in the across machine direction of most papers is only slightly affected by temperature while the folding endurance in the machine direction is materially affected by variations in temperature of 10°F. or more, at a relative humidity of 65 per cent. This necessitates the control of temperature within limits of approximately 10°F.

It is also conclusively shown that the atmospheric effect, either of temperature or relative humidity, on paper is not the same on all kinds of paper or even on papers of the same general type. Hence, it is impossible to secure any factor for calculating folding endurance results at one condition to equivalents at another or to a standard condition.

Owing to the wide difference in the effect of atmospheric conditions on folding endurance, the comparative test values of papers cannot be the same at different humidities and temperatures. Therefore, it is paramount that in the selection and adoption of a standard testing condition, this condition must be in harmony with the use and service demanded of paper.

The folding endurance in the machine direction of all papers

TABLE 2—FOLDING ENDURANCE RESULTS AT DIFFERENT RELATIVE HUMIDITIES

All Tests Made Between February 15 and August 1, 1915

Each Tabulated Result Is the Average of 20 Tests

Serial No.	Kind of Paper	70° F. 25% r.h.	70° F. 30% r.h.		70° F. 40% r.h.		70° F. 45% r.h.		70° F. 55% r.h.		65° F. 65% r.h.	
Machine Direction:		d.f.	d.f.	*%	d.f.	†%	d.f.	‡%	d.f.	§%	d.f.	¶%
21,916	Coated ledger ..... 100% rag.....	19	24	26	30	58	54	184	46	142	82	332
21,919	Ledger ..... 100% sulphite.	12	23	92	36	200	51	325	99	725	153	1,175
21,908	Bond ..... 100% sulphite.	11	14	27	34	209	47	327	104	845	166	1,409
21,934	Rag book ..... 100% rag.....	96	133	39	177	84	265	176	321	234	364	279
30,451	Rag and sulphite bond..... {55% rag, 45% sulphite}	51	67	31	84	65	92	80	113	122	129	153
30,452	Rag and sulphite bond..... {65% rag, 35% sulphite}	93	121	30	162	74	195	110	283	204	352	278
30,730	Parchment bond ..... 100% rag.....	384	441	15	666	73	807	110	1,295	237	1,670	335
20,403	Parchment bond ..... 100% rag.....	560	626	12	824	47	1,105	97	1,418	153	1,616	190
24,033	Rag and sulphite bond..... {80% rag, 20% sulphite}	399	456	14	626	57	759	90	1,092	174	1,668	318
21,922	Rag book ..... 100% rag.....	762	1,051	38	1,303	71	1,679	120	2,119	178	3,005	294
21,924	Rag ledger ..... 100% rag.....	189	244	29	408	116	467	147	899	376	1,219	545
21,925	Rag bond ..... 100% rag.....	598	689	15	1,104	85	1,352	126	2,010	236	2,470	313
Mean increase over d.f. at 25% r.h.....		...	...	31	....	95	....	158	....	302	....	468
Across Machine Direction:												
21,916		25	26	4	29	16	34	36	35	40	38	52
21,919		59	92	56	92	56	114	93	140	137	153	159
21,908		38	51	34	78	105	74	95	83	118	113	197
21,934		63	75	19	130	106	70	11	138	119	142	125
30,451		30	32	7	35	17	37	23	37	23	35	17
30,452		122	139	14	154	26	153	25	151	24	155	27
30,730		382	426	12	532	39	610	60	675	77	764	100
20,403		293	363	24	423	44	524	79	508	73	514	75
24,033		231	264	14	310	34	376	63	430	86	504	118
21,922		453	486	7	617	36	815	80	830	83	820	81
21,924		309	332	7	505	63	663	115	867	181	1,204	290
21,925		709	864	22	1,195	69	1,390	96	2,218	213	2,831	299
Mean increase over d.f. at 25% r.h.....		...	...	18	....	51	....	65	....	98	....	128

*Percentage increase at 30% r.h. over double folds at 25% r.h.
†Percentage increase at 40% r.h. over double folds at 25% r.h.
‡Percentage increase at 45% r.h. over double folds at 25% r.h.
§Percentage increase at 55% r.h. over double folds at 25% r.h.
¶Percentage increase at 65% r.h. over double folds at 25% r.h.

TABLE 3.—FOLDING ENDURANCE RESULTS AT 45% AND 65% RELATIVE HUMIDITIES AND 70° TEMPERATURE.
Test made March 17-18, 1921, at 45%; March 21-22, 1921 at 65%.
Each result tabulated is the average of 20 tests.

Serial No.	Kind of Paper	Fiber Content	Direction	at 45% r. h. D. F.	at 65% r. h. D. F.	Percentage increase from 45 to 65%.
38,849	Kraft Wrapping	100% Sulphate	Cut with Machine	938	3,529	276%
			Cut across machine	766	1,799	135
38,850	Rope Wrapping	75% Jute or Manila 25% Sulphite	Cut with machine	782	3,394	334
			Cut across machine	338	560	66
21,904	Sulphite Wrapping	100% Unbleached Sulphite	Cut with machine	176	1,495	749
			Cut across machine	238	1,025	330
30,855	*Ledger	100% Rag	Cut with machine	662	1,822	175
			Cut across machine	495	853	72
31,249	*Ledger	100% Rag	Cut with machine	1,312	2,865	118
			Cut across machine	1,344	1,559	16
30,731	*Parchmont Bond	100% Rag	Cut with machine	544	1,218	124
			Cut across machine	450	533	18
30,857	*Bond	100% Rag	Cut with machine	1,179	2,040	73
			Cut across machine	728	697	4
30,856	*Bond	55% Rag 45% Sulphite	Cut with machine	155	279	80
			Cut across machine	88	104	18
31,250	Ledger	100% Sulphite	Cut with machine	42	85	102
			Cut across machine	27	40	48
30,858	Bond	100% Sulphite	Cut with machine	33	72	118
			Cut across machine	37	45	22

*Tub sized Bond and Ledger Papers.

tested is higher at 65 per cent relative humidity than that of the across machine direction. The difference between the folding endurance results in the machine and the across machine directions is much greater with all papers at 70°F. and 65 per cent relative humidity than it is at 70°F. and 45 to 50 per cent relative humidity. The folding endurance results in the across machine direction at 70°F. and 45 to 50 per cent relative humidity is greater with some papers than those in the machine direction.

The results given in this article most strikingly show the necessity of testing paper under a correct and logical atmospheric condition, and contribute further evidence supporting the adoption of 70 to 75°F. and 50 per cent relative humidity, which condition has been selected by the Government Printing Office Testing Section* as in harmony with average indoor atmospheric conditions under which the paper is used.

Furthermore, it is known that many papers in actual service are brittle and crack when folded across the fibers, while the fold parallel to the fibers will be smooth and even. This indicates that at average indoor conditions the machine direction fold (fold across the fibers) is the most important. Yet in the past at 65 per cent relative humidity the machine direction fold has been practically disregarded, the custom being to specify or test the folding endurance on the across machine direction only, which is always, excepting rare instances, the weaker at 65 per cent relative humidity. The error of this practice has already been recognized by the Government Printing Office which now specifies minimum average double folds in both the machine and across machine direction at 50 per cent relative humidity.

Another advantage of the lower humidity for standard testing conditions, especially in connection with folding endurance, is the time required for making the tests. This cannot be considered a logical reason for the adoption of 50 per cent but together with the other advantages of testing at 50 per cent should not be overlooked. The length of time required for the making of tests with the folding endurance tester has been considered by some as a disadvantage of the test, however, it will be noted that the time required for making tests at 65 per cent is more than double the time required at 50 per cent relative humidity.

*"Discussion of Standard Atmospheric Conditions for Paper Testing." PAPER TRADE JOURNAL of February 28, 1924.
†"Relative Humidity and Paper Testing." PAPER TRADE JOURNAL of October 9, 1924.

Backus-Brooks Co. to Expand in Canada

MINNEAPOLIS, Minn., December 16, 1924.—A $5,000,000 development in connection with the water supply for the paper mill of the Backus-Brooks Company of Minneapolis at Kenora, Ont., requiring employment of 500 men, with a week is authorized by the Canadian government, a dispatch from Winnipeg said recently.

E. W. Backus, president of the company, said he is expecting confirmation momentarily from Ottawa, and that as soon as it was received the work would be started.

The plan of development was proposed by an international joint commission before the World war. It would increase the discharge from the Lake of the Woods and prevent inundation of surrounding forest and agricultural lands in flood times.

The project was postponed until after the war by suggestion of the commission and further delayed by Winnipeg officials who feared the city water supply might be disturbed.

The improvement involves excavation of 80,000 cubic yards of rock under water at the mouth of the Lake of the Woods river, 130 miles east of Winnipeg. The rock is an obstruction to the flow out of the lake. The excavation would cost $1,100,000, Mr. Backus said. The remainder of the $5,000,000 would be expended on the powerhouse building and in enlarging the paper mill from its present capacity of 125 tons a day to 250 tons a day.

Under the authority granted by Canada, control of the water is to be lodged with the government. The Canadian government will pay for $800,000 of the cost of the improvement. The international commission recommended the government do a part of the work, and under the agreement the Backus-Brooks Company will make the whole improvement and be refunded the $800,000.

Mr. Backus said work should be completed before the end of 1925. The enlarged mill would be one of the largest paper mills in the country.

Explosion at Kenogami Plant

MONTREAL, Que., December 15, 1924.—Ernest Boily, 26, is dead and one other man is suffering from burns about the head and hands as the result of a steam pipe break which occurred in the furnace room of Price Bros. Company plant at Kenogami last week.

The dead man and three other employees of the company had finished their lunch at midnight and had returned to the furnace room for a chat. As they were talking they were startled by the sound of escaping steam and in a moment they were blinded by coal dust which was thrown about by the rush of steam. A steam pipe had burst.

Two of the men managed to reach the exits before the steam engulfed them and they escaped without injury, but Boily and Gerard, the injured man were so blinded that they were unable to locate the windows or doors. Boily apparently staggered right into the path of the escaping steam and was so burned as to be almost unrecognizable later. Gerard retained his presence of mind and, covering his face with his hands, rushed through the steam and found a door and rushed to the outer air.

As soon as possible the steam was shut off and the men returned to get Boily. The found him, still alive, but terribly burned and immediately summoned medical assistance. First aid was rendered and the man was taken to the hospital where he died later.

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

CLARENCE J. WEST, Chairman

Manufacture of Mechanical Pulp. I. H. Copeland. *Paper* 33, No. 20, 5-6 (Mar. 6, 1924). A discussion of the action of different burrs: straight-cut, spiral or diagonal, thread, and diamond burrs.—A. P.-C.burrs.—A. P.-C. Not to be released until Dec. 10.

Fire Proof Wall Board. H. A. Parkyn. U. S. pat. 1,466,246, Aug. 28, 1923. A dried unpressed board is formed of a mixture of difficulty ignitible fibrous material such as paper pulp or bark, a soluble silicate, and asbestos.—A. P.-C.

Pulp Article. A. Tingle. U. S. pat. 1,465,882, Aug. 21, 1923. Pressed pulp sheets consisting largely of groundwood are parchmentized superficially, and are then coated with a varnish to make them suitable for the manufacture of containers for foods.—A. P.-C.

Reinforcing Corrugated Board. Thompson & Morris Mfg. Co. Eng. pat. 214,797. Separate strips of strengthening material are applied to the board as it is being scored and folded ready to be made into boxes, etc.—A. P.-C.

Reinforced Paper Fabric. P. T. Jackson assignor to Paper Products Machine Co. U. S. pat. 1,464,155, Aug. 7, 1923. Two layers of papers are secured together. One of the plies being more absorbent than the other is impregnated with a suitable stiffening agent, and reinforcing filaments are embedded in the adhesive between the two paper layers.—A. P.-C.

Adhesive for Making Abrasive Paper. F. J. Crupi assignor to H. Behr & Co. U. S. pat. 1,484,759, Feb. 26, 1924. Rosin is dissolved in carbolic acid to form an acidulated solution capable of absorbing water to a limited extent, the acid of the solution serving to reduce the surface tension between the solution and the glue, and this solution is then mixed with an aqueous glue solution containing acetic acid.—A. P.-C.

Waterproof Fiber Board. A. L. Clapp assignor to Beckwith Mfg. Co. U. S. pat. 1,490,362, Apr. 15, 1924. Box toe waste from shoe factories having a thermoplastic material incorporated with, e. g., waxes, oils, and asphalt, is disintegrated and formed into a sheet of paper on a paper machine and then subjected to heat and pressure.—A. P.-C.

Coated Waterproof Sheeting. L. Kirschbraun. U. S. pat. 1,489,254, Apr. 8, 1924. A waterproof roofing is formed by impregnating a roofing felt with asphalt and coating on one side with asphalt, fiber and an emulsifying agent, e. g., a mixture of pulp, asphalt, clay and water.—A. P.-C.

Cartons. National Paper Can Co. Eng. pat. 216,305. The cartons are made up of separate layers, each made grease and moisture proof before being made into one laminated sheet. The closure cap and bottom piece are made up in the same way.—A. P.-C.

Manufacture of Molded Articles, Particularly Heels and Soles for Footwear. L. MacFarlane. U. S. pat. 1,477,576, Dec. 18, 1923. Wet disintegrated wood pulp of other cellulosic material is rendered at least partially waterproof by treatment with sodium resinate and Scotch glue, and precipitating the sizing material by the action of zinc sulphate or other precipitant, heating the mixture about 82°, and molding it under pressure in a hot mold.—A. P.-C.

Process for Waterproofing Paper. R. A. Grimoin-Sanson. U. S. pat. 1,476,226, Dec. 4, 1923. Powdered cork is soaked in an alkaline solution and then dried. A coating of rubber is applied to the paper sheet and the dried cork powder is then applied on top of the rubber layer.—A. P.-C.

Waterproof Fibrous Sheet. L. Kirschbraun. U. S. pat. 1,464,717, Aug. 14, 1923. Waterproof sheets, e. g., sheets of fiber, clay and asphalt, are coated with a similar mixture containing a smaller proportion of fiber.—A. P.-C.

Waterproof Building Boards. L. Kirschbraun. U. S. pats. 1,479,043 and 1,479,044, Jan. 1, 1924.—No. 1,479,043. Sheets or boards are prepared by making an emulsion miscible with water from pitch and bentonite or equivalent materials, enclosing a layer of this emulsion between two sheets of paper or board, removing the water, and heating to make the pitch coalesce and form a cement. No. 1,479,044 specifies a similar product in which the bituminous layer contains also fibrous material, with or without kieselguhr or ground cork.—A. P.-C.

Waterproof Paper and Cardboard. August R. Muller. Ger. pat. 388,063. *Wochbl. Papierfabr.* 55, 666 (Mar. 22, 1924). For waterproofing paper and cardboard the sheets are soaked in a solution of pitch in crude benzene, creosote oil, or other solvents. Then they are exposed to a temperature of at least 120° C., until the solvents have evaporated.—J. L. P.

Manufacture of Water-Impervious Paper. Heinrich Burger. Ger. pat. 394,771. *Papierfabr.* 22, 226 (May 18, 1924). Paper or paper-board is soaked in fused naphthalene, or similar substances of the naphthalene group, either alone or mixed with a soluble resin, asphalt, or sulphur at a high temperature.—J. L. P.

Waterproofing Paper. Anon. *Papierfabr.* 22, 278-280 (May 11, 1924). Paper impervious to water may be made by coating the wet sheet with a layer of gelatine, or a similar adhesive, and passing through rolls. After drying, the sheet is covered with an oil or lacquer.—J. L. P.

Reinforcing Paper. C. H. Howard. Eng. pat. 216,027. The paper is reinforced by layers of unspun fibers which are fed between two layers of paper. The fibers are drawn out and combed during the feeding process.—A. P.-C.

Asphalt Roofing. F. C. Overbury, assignor to The Flintoke Co. U. S. pat. 1,481,430, Jan. 22, 1924. A roofing felt is impregnated with an asphaltic composition and there is then applied to the saturated sheet an inert insoluble mineral substance, such as powdered talc or slate, in suspension in water, and the water is then allowed to evaporate, leaving the powdered material on the surface of the sheet.—A. P.-C.

Roofing Paper. M. Blumenthal. U. S. pat. 1,483,711, Feb. 12, 1924. The paper is built up of several plies of impregnated felt, with longitudinal reinforcing strips between the plies, and surfaced with powdered mica.—A. P.-C.

Waterproof Roofing Material. C. E. Rahr and L. Kirschbraun. U. S. pat. 1,469,606, Oct. 2, 1923. A colored waterproofing material such as a mixture of wax tailings, clay and water, is applied as a matrix to fill the voids in a granular surfacing of roofing, and a smooth surface is formed by smoothing down the matrix and abrading the protruding upper portions of the granular material.—A. P.-C.

Roofing Material. H. F. Weiss assignor to C. F. Burgess Laboratories. U. S. pat. 1,467,594, Sept. 11, 1923. A loose porous and highly absorbent mat of wood fibers or similar dry material with relatively slight cohesion is saturated with asphalt, pitch, or similar materials of high melting point.—A. P.-C.

Roof Paper. F. Hoyer. *Wochbl. Papierfabr.* 55, 1056-1058 (May 3, 1924). The raw materials used for roof papers are rags, waste material from the textile industry, and old papers. The ash content should not exceed 12%, and the air dry product should not contain more than 12% water. The various stages through which these raw materials are passed are briefly described.—J. L. P.

TECHNICAL SECTION, PAGE 230

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

APPRAISALS AND THEIR APPLICATION*

By L. H. Olson, Vice-President American Appraisal Co.

I have been invited here to talk to you on the subject of appraisals and their application, and requested to go into some detail as to the actual investigation and operations involved in the preparation of appraisal reports as well as the application of these reorts to the plant and cost accounting insurance and taxation problems in which you men are interested.

It may, therefore, be desirable to take up in some detail the actual work involved in the preparation of an appraisal of a typical paper mill, or other similar property.

A Typical Paper Mill

A typical paper mill includes such properties as standing timber, water rights, land sites for plant and residence purposes, plant buildings, machinery, fixtures and tools, office furniture and fixtures, delivery equipment, railroad sidings, logging railroad, rolling stock and logging equipment.

In considering such a property from the appraisal point of view, we would break down into about forty classifications of property and investigate and inventory each classification of property as an independent unit.

For a standard appraisal of a paper mill property involving valuations of $1,000,000 more or less, a staff of six or more appraisers might be assigned. This would depend somewhat upon the time within which the appraisal report has to be completed.

The preliminary investigation would be in reference to the character and location of the property, and any special form or classification of the appraisal report that might be required to meet the plant accounts, departmental divisions, insurable classifications, or taxation requirements.

One of the first questions would be the method of numbering and designating the respective buildings. If there was existing a system of numbering and designations that should be conformed to, these would be as followed, if not, a system of numbering and designation would be worked out in conference with the plant executives. Usually such a numbering system would follow the manufacturing processes beginning with the office or administration building, buildings used for prepared wood, ground wood, digester, acids, beater, bleaching, machine, and finishing divisions and ending with warehouses and outside construction and equipment.

Frequently, what may be considered one building by the plant management is by the appraiser considered as several buildings on account of the differing character of the construction. For insurance purposes, also, several subdivisions may be necessary to conform to the fire cut-offs.

Where there are several operations carried on in one building that are kept separate for purposes of cost finding, it is necessary to determine the boundary of these divisions to guide the appraiser in listing the equipment for such departments.

A plat plan is usually prepared showing the boundaries of the property, the locations and dimensions of the respective buildings and the important items of outside or yard construction, and the boundaries of the departmental divisions within the respective buildings.

Copies of this plat plan with other instructions in reference to a particular appraisal are furnished to the respective appraisers, and guide them in their designations of the location of the properties by buildings, floors, departments and outside.

The actual work of inspecting and inventorying the properties will be assigned to different appraisers specializing on different kinds of properties. One appraiser will take the timber, another the water power rights, another land, another buildings, another machinery, transmissions, piping, and minor equipment.

The Valuation of Timber

The valuation of the timber is usually based upon the report of a cruiser who estimates the quantity and character of the standing timber and reports on the character of the land in relation to efficient timbering and logging operations. The value is usually based upon a unit price per thousand log measures of standing timber, in accordance with the character of the timber, the existing accessibility of the timber, and its relation to the market.

The land appraiser obtains the description and boundaries of the land from the deeds, or other authentic information, inspects the land as to its location, utility, shipping facilities and environment. He usually, looks up the assessment records, investigates sales of joining or similar land, obtains the asking price for any similar land then on the market, and compares this evidence with his prior information and judgment in determining the market value of the particular land under consideration.

The description of the land is then written, giving its location, boundaries, area and any special conditions affecting its value with the unit price per square foot, or other unit of measurements, and the resultant total value.

Plant sites in a remote community may simply represent the cost of acquiring unimproved land at a few dollars an acre plus the cost of preparing, grading, etc., to make it adaptable for a

*Delivered at the convention of the Cost Association of the Paper Industry, New York, December 10-12, 1924.

plant site. If the site is selected with a consideration for unusual water, transportation or other facilities, it is entitled to some additional value on these accounts.

Plant sites, however, generally range from something like one cent a square foot in small communities up to one dallar a square foot and more in larger cities.

Appraisal of Buildings

The appraisal of the buildings is usually assigned to two specialists. One takes the building construction, and another the building fixtures, such as heating, lighting, sprinkler system, etc.

The building construction appraiser measures the size of the buildings, the height of the stories and prepares sketches showing the general arrangement and construction of the buildings with the thickness of walls, kind of timber, and description of floors, windows, partitions, stairs, painting, roofing, skylights, drainage, etc. From these sketches, descriptions and other notes, which he takes during his inspection of the buildings, he prepares a schedule of quantities and descriptions of the different materials entering into the construction of the building, beginning with the yardage of excavation, cubic foot of foundation work, thousands of brick in walls, number and sizes of the different kinds of timber, the feet and board measure of lumber going into floor and roof linings and finished floors, number and description of the doors, windows, stairways, partitions, etc., square yards of painting, squares of roofing, lineal feet of gutters, conductors, etc.

To promote accuracy and to economize the time of the field appraiser, he lists the area and depth of foundation, the length, height and thickness of the walls, dimensions of the floors, roofs, etc., without taking the time to reduce these to the unit quantities of excavation, brick, steel, lumber, etc. These computations are made later by the office staff after this (bill) of quantities, as prepared by the field appraiser has been checked as to accuracy against the descriptions and sketches of the buildings.

The field appraiser investigates the local conditions as to wages and efficiency of labor, and source of supply and market prices for building materials in that locality and delivered to that site. The cost for freight charges, truck delivery and unloading are taken into consideration in determining the unit prices to be used as the basis for the determination for the cost and values. This current information is checked against the accumulated price data and the other information collected by the appraisal organization.

The condition of the buildings and the depreciation to be applied against the current reproduction cost in the determination of the present sound values of the buildings is an important factor, and the apraiser observes carefully the condition of the buildings to see if any settlement has taken place due to faulty foundations, poor construction, or overloading, decomposition of mortar or brick due to the exposure to the weather or from (steam) or acids used in the manufacturing processes, wearing of the finished floor or roofing, rock in any of the timber construction, and lining, and deterioration from these and other causes in doors, windows, partitions, drainage, etc.

In accordance with these observed conditions and known age of the buildings, he marks the percentage of exhausted life, or depreciation for these respective portions of the buildings.

The total depreciation applicable to the building is later determined by weighting the average depreciation in proportion to the reproduction cost and per cent of depreciation for the respective parts of the building.

Building Fixtures

The other appraiser inspects and inventories the heating, lighting, sprinkler system, etc., in regular sequence. He usually starts at the point where the wiring or piping enters the building, follows this through the lower story, measuring and listing the lineal feet of wiring and piping, and noting and itemizing the connections, and lists individually the heating and lighting fixtures or sprinkler heads. These are listed separately for each story of the building, to facilitate the identification and checking of these at any time in the future.

The condition of these must also be observed, and the exhausted life recorded in percentages of depreciation sustained.

One appraiser usually lists the machinery, starting in with the boilers, engines, pumps, generator and the productive machinery in the respective buildings in the order in which the buildings have been numbered. Each machine must be described with its correct technical description and size, with notation of any extra attachment or equipment that may come as an extra to the basic cost of the machine.

Description of Machinery

In the description of the machines, as in all other portions of the appraisal work, it is very important that the descriptions be correct as to designation, size and extras as upon this depends the correct pricing of the machines. An error in the designation of the manufacturer's name, type, size and extras may result in an important error in pricing the machines. Even if a correct price is placed on the machine and there is an error in the description of the machine, this may later result in a question as to the accuracy in the price, and the discrepancy between the description and the price may serve to discredit the value of the machine or even of the entire appraisal.

In addition to the cost of the bare machine with its attachments, an allowance must be included for freight and delivery charges, unloading, and installing the machine. The installation costs may include foundation and millwright construction supporting the machine.

A careful observation must be made of each machine as to its condition and the amount of deterioration it has sustained through age and service. Other factors that must be considered are its utility in the particular plant and its degree of obsolescence in comparison with modern machinery of a similar kind.

General Equipment

Similar methods are pursued in the inspection and listing of the power feed wiring, (shafting), pulleys, beltings, manufacturing piping, trucks, scales, tools and minor equipment throughout the plant. Each of the dozen or so classifications comprising this class of property are listed separately, taking each classification floor by floor of each building.

It is this standardizing of classification and systematic method of listing each classification by each floor, building and other location that insures the inclusion of all of the properties comprising the plant equipment.

The office furniture and fixtures comprising desks, tables, chairs, typewriters, computing machines, filing cabinets, carpet, rugs and miscellaneous equipment; delivery equipment comprising trucks, automobiles, horses and stable equipment; and various items comprising the logging equipment are inspected and listed in a similar painstaking manner.

Accuracy of Inspection

No one not having actually engaged in the work of inspecting and listing properties for appraisal purposes has any conception of the amount of experience and training required to properly inspect, list and describe all of the materials, machinery and fixtures entering into the construction and equipment of a paper mill. Every detail has its influence upon the price of the materials and the cost of fabrication and installation. Consider the kinds and grades of lumber that enter into timber framing, finished floors, factory fixtures, partitions and office furniture. These usually comprise Short Leaf Yellow Pine, Long Leaf Yellow Pine, Spruce, White Pine, Maple, Oak, Birch, Walnut and Mahogany in various grades. An error in designation of any item of lumber in building, fixture or furniture makes a difference in the price.

Excavations, concrete, brick, steel, roofing, painting, etc., all have their individual specifications and descriptions.

Power feed wiring, transmission and piping, each have their kind and sizes with a variety of fitting of different sizes, kinds and makes requiring identification and listing.

Selection of men for accuracy of observation and listing.

Trained appraisers will, however, list this great diversity of construction and equipment in a systematic, classified record in a remarkably short period of time. It may, however, take six men ten days or more to properly inspect and list all of the property in a paper mill with a value of one million dollars more or less.

The field appraiser assembles this inventory by classifications of properties subdivided in accordance with the respective buildings, floors and departments, indexes these, prepares his supplementary report covering all local conditions bearing upon the cost and values of the property, and sends all of this data to the office of the appraisal organization.

When this field inventory is completed, the appraisal reports are less than half completed as far as the total time involved in the completing of the appraisal report is concerned.

A Valuation Laboratory

The office of an appraisal organization may be designated as a valuation laboratory. Here are the classified, tabulated results of many years of investigation, analysis and recording and extensive libraries and reference files of catalogues, price data and individual quotations. Here are received daily technical magazines with market conditions and price quotations, price lists and discount sheets from associations and dealers, specific quotations on individual items of machinery and materials, labor quotations, freight rates, etc.

Here are cost analysis departments, analyzing and testing costs in accordance with the relative amount of materials, labor and overhead going into construction and installation; organized departments for checking the inventories of the field appraisers as to accuracy of quantities, sizes and descriptions, and the application of unit prices to the inventory items; clerks specialized in the computation of quantities, extensions and footings for the different classes of the property inventory.

After the notes of the field appraisers have stood the test of the checkers as to quantities and descriptions, they go to the pricing department where the prices applied in the field are checked and the additional prices applied from the office records or for special quotations that may be necessary to obtain for the specific property.

Following the pricing the extensions and footings are made and checked when the complete record goes to the Typing Department. Even in the Typing Department, the typists specialize on different classes of work, to promote efficiency and accuracy. The typed inventories are checked both by proofreading and by a recomputation of all of the figures appearing in the typed statement.

The complete typed inventory with all of the field notes then goes to the Summarizing Department where the total appraised reproduction cost and values are classified and arranged in accordance with the appraisal classifications, building designations, departmental divisions, plant accounts, and insurable divisions, in accordance with which the final appraisal report must be classified and arranged.

The final result is usually boiled down into a certified statement specifying the general character of the properties appraised, and stating the basis upon which the values are determined and the total values for the main divisions of property assets.

Complete Appraisal Report

The complete appraisal reports are then ready for assembling and binding. In a large appraisal organization such as the one I represent, we make our own covers and bind the reports.

The complete appraisal report then consists of:

(A) A certificate of values usually in a one-page certified statement.

(B) A summary volume with numerous summaries in accordance with property classifications, building locations, departmental divisions, and plant accounts.

(C) An insurance summary showing the distribution of the appraised values in accordance with the insurable divisions and with a separate schedule of foundations, piping, etc., below ground and other property considered non-insurable.

(D) Inventory volume containing the detailed schedule of properties with the unit costs. These are usually arranged by appraisal classifications with the items listed in accordance with their building floor department location.

(E) The appraisal reports are usually accompanied by certain drawings. These may consist of anything from a plat plan showing the boundaries of the properties with the size, location and arrangement of the respective buildings up to complete set of detailed drawings with sections showing the construction of the building and floor plan, showing their arrangement of all building features and the location of machinery transmission and major items of equipment.

The appraisal reports comprise a statement of total values, complete summaries and detailed inventories that permit of the analysis of the property costs and values from the total figures appearing in the certificate and summaries down through the respective accounts and classifications to the individual property units.

The orderly classification and arrangement permit of finding the total cost or value for any subdivision, and the indexing in the inventory volume permits of the ready location and identification of any property units with its description, type, size and appraised cost.

The drawings serve as an addition means of identification, the location of the item in the plant and for corroboration of the inventory.

The appraisal reports are now ready for use by the plant management. Plant properties, however, are subject to continuous change on account of additions, removals, reconstruction, changes in equipment, and wear and tear, and the appraised cost and values are subject to change with the rise and fall of market prices and the result of depreciation.

Continuous Appraisal

A continuous appraisal service is necessary to keep the appraisal report, cost and values up to date in accordance with these changing conditions.

In order to keep these appraisal reports up to date in the most economical manner, the appraisal company co-operates with the plant management in the maintenance of a record covering all plant expenditures and changes. The appraisers may furnish standard forms upon which these expenditures and changes may be recorded or may study the plant accounting records and organization and make recommendations for special forms and methods to facilitate the accumulation of this information in a form and manner that will best serve the plant accounting requirements and, at the same time, meet the requirements of the appraisal organization for keeping the appraisal report up to date.

Where plant requisition forms are used for additions and changes to plant properties, these automatically accumulate the necessary information as to the location and description of properties added, adjusted or changed, and the material, labor and cost involved in such changes.

An additional copy of these plant orders or requisition forms or a summary from these or the other plant accounting records may be maintained on two plant report sheets furnished by the appraisal organization as the basis for keeping the appraisal records up to date. One copy of these sheets is furnished to the appraisal organization and one copy retained by the plant management for their records. In order to have these records up to date it is recommended that these reports be furnished to the appraisal organization monthly,

covering the expenditures on and the changes in the property during the prior month.

Reports Checked and Audited

As these reports are received by the appraisal organization they are checked and audited to see that the classifications, and descriptions conform with appraisal requirements, that the proper location and property classification are furnished, and that the costs of material, labor and installation are reasonable.

The costs are then checked or analyzed as to their proper distribution as between additions, renewals, and maintenance expenditures and summarized in accordance with the property location and classifications.

These reports are then checked against the original appraisal report and the additions and changes noted therein.

Improper Classification Disclosed

This analysis and checking usually brings to light any failure on the part of the plant management to properly classify and locate the items, failure to include all charges for foundations, freight, installation or necessary auxilliary equipment, or to report the removal of property replaced by the new equipment, as is particularly the case in connection with alterations when property in the original appraisal has been removed or reconstructed in connection with betterments and changes that have been made.

The appraisal organization then reports back to the plant management any comments and suggestions that it may have in reference to the reports received, with summaries showing the distribution of the costs of the additions and removals and the revised appraised costs and values, giving effect in these reports to the estimated depreciation for the period.

Periodically or as required these costs and values are revised in accordance with the changed market conditions.

With this up to date property record maintained through the Continuous Appraisal Service, the appraisal organization is in a position any time to most efficiently check and verify the report by assigning appraisers to reinspect the properties and verify and correct where necessary the reports which have been submitted and previously analyzed, recorded and summarized by the appraisal organization.

This personnel service is desirable where any extensive classifications have been made that makes it impossible or impractical for the plant organization to properly identify, record and allocate their cost report.

In case of loss of all or a portion of the properties by fire, it permits of a rapid and accurate presentation of a proof of loss.

The revision of the appraised values whenever market conditions change and the revision of the insurable value is required permits of the changing of the amount of insurance carried to avoid over-insurance and co-insurance.

Verification of Value Required

There are many emergencies that require the verification of the value of the plant property. When the emergency arises, whether it is as the result of fire loss, re-organization, financing or sale of property, the plant management who have up to date appraisal records that can be certified to with the minimum amount of time and effort is in a most advantageous position.

We have just had a call from bankers for a report on the value of extensive plant properties within what would have ordinarily been an impossible time. The property proved to be one upon which we had up to date appraisal records maintained through our Continuous Service and it was possible to reinspect the property, certify and correct the report and furnish the bankers an authoritative statement within a time that surprised and delighted them. It also reflected credit on the plant management who, having maintained property records in such a manner that these were up to date in a manner that verified our totals.

To Regulate Hudson River's Flow

Albany, N. Y., December 8, 1924.—Regulation of the Hudson River's flow, a step of vital importance to pulp and paper making firms with mill properties located on the river or its branches, appears to be on the way to becoming a reality. The initial step in the project is the construction of a huge reservoir in the Sacandaga Valley, the estimated cost of which will be $9,000,000. The cost of this development will be borne in proportionate shares by more than a score of municipalities and industrial firms which will benefit therefrom. Some of the pulp and paper firms which will be assessed for the work are the International Paper Company, Finch, Pruyn & Co., Inc., Glens Falls; Union Bag and Paper Corp., of Hudson Falls; the United Paper Board Company, of Thomson, and the West Virginia Pulp and Paper Company. Construction work on the proposed dam and reservoir will begin as soon as weather permits in the spring.

The Hudson River Regulating Board is composed of three members and came into existence as a result of the passage by the legislature of a law which was strongly advocated by the pulp and paper industry of the Hudson River area. "The need for the regulation of the flow of the Hudson River," according to E. H. Sargent, engineer of the Hudson River regulating district, "is strikingly shown by the difference in the high and low water flows of the river. During the flood of March 1913, the greatest flood in the history of the Hudson River, the flow at Glens Falls reached a maximum of 90,000 cubic feet per second whereas the flow at Glens Falls today is approximately 1,000 cubic feet per second."

The construction of storage reservoirs in the Hudson River watershed is not a new subject. Various investigations and studies of the storage possibilities of the Hudson have been made for the past fifty years but with the exception of the Indian Lake reservoir constructed in 1898 by the Indian River Company (organized by pulp and paper firms along the Indian River) nothing has been done except the making of surveys of possible reservoirs and the compilation of costs summarizing the costs and benefits.

The board has prepared a general plan for the regulation of the Hudson's flow. This plan has been approved by the State Water Control Commission and is known as the official plan. It calls for the regulation of the river by the construction of sixteen reservoirs on sites now believed to be available and feasible. The principal reservoirs are the Sacandaga, which is located on the Sacandaga River, about five miles above Hadley; Piseco Lake and Lake Pleasant reservoirs on the upper Sacandaga River; Ords' Falls and Chain Lakes reservoirs on the upper Hudson River and the Schroon Falls reservoir on the Schroon River. It is believed that in addition to the sixteen reservoirs included in the general plant there are a number of other reservoir sites which further investigation will show to be feasible.

The four main benefits to be derived from the operation of this reservoir are: first, the increase in water power due to the regulation of the flow. Second, the reduction of damage caused by floods. Third, the lessening of unsanitary conditions in the rivers by the decrease in pollution in sewage and wastes from the mills. Fourth, the benefit to navigation.

As to the first of these benefits it will suffice to say that the Sacandaga reservoir alone will increase the continuous or primary power at the various mills and water power plants already constructed from 34,000 horse power to 135,000 horse power. Also the unemployment caused by the shutdown of paper mills on the Hudson River due to lack of water will be prevented. Not so many years ago when hydro-electric plants were forced to run at a fractional part of their capacity because of insufficient water the industries dependent upon that power were forced to shut down. Today large steam plants are tied into the hydro-electric plants so that business, outside of the paper mills, is generally not interrupted. However, the benefit of storage in this instance is the value of the coal saved. The regulation of stream flow effected by the Sacandaga reservoir is the equivalent of over 400,000 tons of coal a year.

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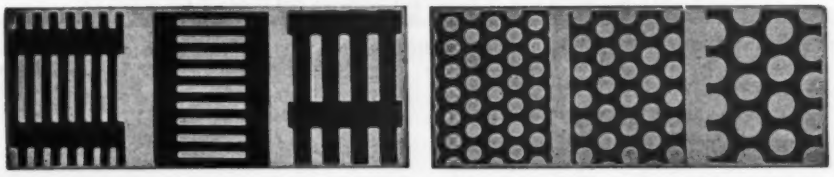

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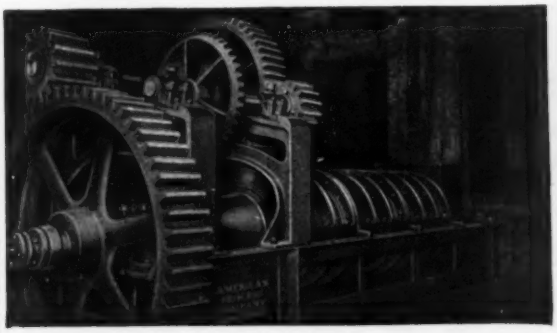

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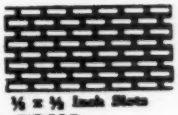

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Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 13, 1924

SUMMARY

News print.....328 rolls
Printing paper.....31 cs.
Cigarette paper.....42 cs.
Wall paper.....57 bls.
Hangings.....90 bls., 10 cs.
Metal paper.....13 cs.
Packing paper.....34 bls.
Wrapping paper.....803 bls., 6 cs.
Colored paper.....110 cs.
Writing paper.....2 cs.
Filter paper.....61 cs., 25 bls.
Drawing paper.....40 cs.
Parchment Paper.....20 cs.
Fancy Paper.....3 cs.
Copy Paper.....25 cs.
Tissue Paper.....4 cs.
Miscellaneous paper.....84 cs., 3 frms.

CIGARETTE PAPER

Standard Products Corp., Liberty, Havre, 40 cs.
De Sola Bros. & Pardo, Hektor, Barcelona, 2 cs.

PAPERHANGINGS.

W. H. S. Lloyd & Co., Carmania, Liverpool, 21 bls.
W. H. S. Lloyd & Co., by same, 1 cs.
W. H. S. Lloyd & Co., Minnewaska, London, 9 cs.
W. H. S. Lloyd & Co., by same, 53 bls.
A. C. Dodman Jr., Inc., Celtic, Liverpool, 16 bls.

WALL PAPER

F. J. Emmerich, Celtic, Liverpool, 19 bls.
F. J. Emmerich, Aquitania, Bordeaux, 14 bls.
F. J. Emmerich, Westphalia, Hamburg, 24 bls.

WRAPPING PAPER

C. Steiner, Westphalia, Hamburg, 3 cs.
W. Schall & Co., by same, 275 bls.
International Acceptance Bank, by same, 28 bls.
Bendix Paper Co., American Merchant, London, 3 cs.
Republic Bag & Paper Co., Texas Maru, Hamburg, 500 bls.

PACKING PAPER

J. P. Heffernan Paper Co., Westphalia, Hamburg, 34 bls.

NEWS PRINT

J. H. Scott Paper Co., Westphalia, Hamburg, 278 rolls.
Chemical National Bank, by same, 50 rolls.

PRINTING PAPER

B. F. Drakenfeld & Co., Carmania, Liverpool, 31 cs.

FILTERPAPER

H. Reeve Angel & Co., Inc., Minnewaska, London, 7 cs.
H. Reeve Angel & Co., Inc., Chicago, Bordeaux, 25 bls.
E. Fougera & Co., Chicago, Bordeaux, 51 cs.
Bernard Judae & Co., Westphalia, Hamburg, 3 cs.

PARCHMENT PAPER

W. Schall & Co., Westphalia, Hamburg, 20 cs.

METAL COATED PAPER

Hensel Bruckman & Lorbacher, Westphalia, Hamburg, 10 cs.
H. D. Catty, by same, 3 cs.

WRITING PAPER

H. Reeve Angel & Co., Inc., Minnewaska, London, 1 cs.
F. Heller, France, Havre, 1 cs.

FANCY PAPER

Whiting & Patterson, Inc., France, Havre, 3 cs.

COPY PAPER

Whitfield Paper Co., Lisbon Maru, Kobe, 25 cs.

TISSUE PAPER

Iwai & Co., Lisbon Maru, Kobe, 4 cs.

DRAWING PAPER

E. Dietzgen & Co., Texas Maru, Hamburg, 40 cs.

COLORED PAPER

E. Dietzgen & Co., Texas Maru, Hamburg, 110 cs.

PAPER

A. Goodman & Co., Chicago, Bordeaux, 16 cs.
Paul Tobeler & Co., Westphalia, Hamburg, 3 frames.
R. F. Downing & Co., Inc., by same, 4 cs.
Phœnix Shipping Co., by same, 14 cs.
P. J. Schweitzer, France, Havre, 50 frames.

RAGS, BAGGINGS, ETC.

Castle & Overton, Inc., City of Yokohama, Smyrna, 563 bls. rags.
Castle & Overton, Inc., Columbia, Glasgow, 50 bls. bagging.
Katzenstein & Keene, Inc., by same, 30 bls. bagging.
Katzenstein & Keene, Inc., by same, 30 bls. rags.
Katzenstein & Keene, Inc., by same, 65 bls. newcuttings.
Brown Bros. & Co., by same, 68 bls. paperstock.
E. J. Keller Co., Inc., Pr. Roosevelt, Bremen, 393 bls. rags.
E. J. Keller Co., Inc., Missourian, Kobe, 380 bls. rags.
E. J. Keller Co., Inc., Stuttgart, Bremen, 288 bls. rags.
Castle & Overton, Inc., by same, 58 bls. rags.
Castle & Overton, Inc., London Mariner, London, 71 bls. bagging.
Salomon Bros. & Co., Liberty, Havre, 43 bls. rags.
E. J. Keller Co., Inc., by same, 50 bls. rags.
E. J. Keller Co., Inc., by same, Dunkirk, 48 bls. rags.
Royal Manufacturing Co., Lisbon Maru, Kobe, 50 bls. cottonwaste.
Brown Bros. & Co., Westphalia, Hamburg, 68 bls. rags.
Garfield National Bank, by same, 91 bls. rags.
M. O'Meara Co., by same, 79 bls. rags.
Seaboard National Bank, by same, 115 bls. rags.
E. J. Keller Co., Inc., by same, 136 bls. rags.
E. J. Keller Co., Inc., by same, 100 bls. rag pulp.
E. J. Keller Co., Inc., by same, Stockholm, 115 bls. rags.
E. J. Keller Co., Inc., Texas Maru, Hamburg, 76 bls. jutewaste.
Belgian Bank, by same, 132 bls. rags.
M. O'Meara Co., Troubadour, Buenos Aires, 190 bls. rags.
R. Blank, West Eldara, Antwerp, 327 bls. rags.
E. J. Keller Co., Inc., by same, 85 bls. rags.
E. J. Keller Co., Inc., by same, 40 bls. bagging.
E. J. Keller Co., Inc., by same, 80 bls. bagging.
J. J. Patricoff, by same, 136 bls. bagging.
American Woolstock Corp, by same, 96 bls. bagging.
M. O'Meara Co., by same, 42 bls. bagging.
Castle & Overton, Inc., by same, 44 bls. rags.
A. W. Fenton, Inc., by same, 278 bls. rags.

OLD ROPE

R. Blank, West Eldara, Antwerp, 86 coils.
E. J. Keller Co., Inc., Stuttgart, Bremen, 51 coils.
W. Schall & Co., Westphalia, Hamburg, 40 coils.

WOOD PULP

Tidewater Papermills Co., Bornholm, Murray Bay, 6,027 bls. wood pulp.
Castle & Overton, Inc., Westphalia, Hamburg, 1,265 bls. wood pulp, 243 tons.
Mead, Patton & Co., Dienze, Gaspe, 4,464 bls. wood pulp, 883 tons.
Equitable Trust Co., Texas Maru, Hamburg, 179 bls. sulphite pulp, 24 tons.
Nilsen, Lyon & Co., Nitedal, Sundsvall, 125 bls. chemical pulp, 25 tons.
Bulkley, Dunton & Co., by same, 1,250 bls. chemical pulp, 250 tons.
M. Gottesman & Co., Inc., by same, 4,835 bls. sulphite pulp, 947 tons.
Johaneson, Wales & Sparre, Inc., by same, 2,250 bls. sulphite pulp, 375 tons.
Scandinavian Pulp Agency, Inc., by same, 600 bls. sulphite pulp, 120 tons.
Scandinavian Pulp Agency, Inc., by same, 1,150 bls. sulphate pulp, 230 tons.
Hudson Trading Co., by same, 1,500 bls. sulphite pulp, 300 tons.

WOODFLOUR

A. Kramer & Co., Norefjord, Hekkefjord, 1,000 bags, 50,000 ks.

CASEIN

Atterbury Bros., Inc., Lassell, Buenos Aires, 834 bags.
Bank of America, Leighton, Buenos Aires, 1,667 bags.
Bank of the Manhattan Co., by same, 1,250 bags.
Bank of London & South America, by same, 833 bags.
T. M. Duche & Sons, Troubadour, by same, 1,301 bags, 78,060 kilos.

BOSTON IMPORTS

WEEK ENDING DECEMBER 13, 1924

American Express Co., Capulin, Plymouth, 36 bls. new rags for papermaking.
Baring Bros. & Co., by same, 67 bls. waste paper.
Brown Bros. & Co., by same, 203 coils old rope.
Philadelphia National Bank by same, 41 bls. dark cottons for papermaking.
Guaranty Trust Co. by same, 28 bls. old rags.
Philadelphia National Bank, by same, 150 bls. old rags.
American Express Co., West Lake, Liverpool, 121 bls. old rags.
Boston Post, Nathiar, Kotka, 106 reels news print.
On order by same, 4,422 bls. strong sulphite cellulose.
On order by same, 187 cs. printing paper.
On order by same, 150 bls. bleached sulphate cellulose.
On order by same, 2,540 bls. dry strong unbleached sulphate pulp.
On order 610 bls. strong sulphite cellulose; 630 bales ditto.
Lagerloef Trading Co., by same, 368 bls. easy bleached sulphate cellulose.
Parsons & Whittemore, Inc., by same, 19 bls. standard news print.
Chase National Bank, by same, 370 bls. solid white wood-pulp board.
On order, by same, 926 reels news print.
On order, by same, 1,770 bls. sulphite cellulose.
On order, by same, 277 bls. sulphate cellulose.
On order, by same, 209 reels, news print.
On order, by same, 508 reels, unbleached sulphate pulp.
Lee Higginson & Co., Inc., Sac City, Antwerp, 27 bls. old rags.
Castle & Overton, by same, 256 bls. wood pulp.
Chemical National Bank, by same, 92 reels news print.
Equitable Trust Co., by same, 243 bls. cellulose.
E. Y. Keller & Co., Inc., by same, 253 bls. old rags.
British American Tobacco Co., by same, 25 cs. wrapping paper; 112 bales ditto.
G. F. Malcolm, Valemore, Liverpool, 13 cs. tissue.
F. S. Webster & Co., Inc., Nubian, Liverpool, 19 cs. tissue.
Equitable Trust Co., Novian, London, 123 bls. wastepaper.
Baring Bros. Co., by same, 191 bls. wastepaper.
Brown Bros. Co., by same, 115 bls. old rope.
Crocker, Burbank & Co., by same, 492 bls. wastepaper.
On order, by same, 111 bls. old rags.
Anglo South American Trust Co., by same, 23 bls. old rags.
G. M. Graves & Co., by same, 155 bls. old rags.
Brown Bros. & Co., by same, 174 bls. old rope.
American Express Co., by same, 39 bls. old rags.
First National Bank, by same, 226 bls. old rags.
On order, by same, 49 cs. paper.
On order, by same, 42 bls. paperstock.
Johansen, Wales & Sparre, Inc., Kentucky, Copenhagen, 875 bls. dry sulphite pulp.
The Borregaard Co., by same, 4,625 bls. dry wood pulp.

(Continued on page 66)

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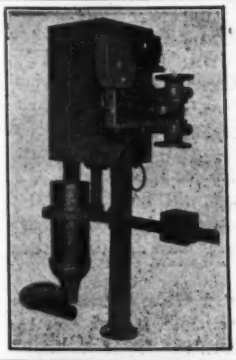

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For ALL of his Machines.

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Also "Made in Canada"

TRIMBEY MACHINE WORKS, Glens Falls, N. Y.

Imports of Paper and Paper Stock

(*Continued from page 64*)

Scandinavian Pulp Agency, Kentucky, Copenhagen, 311 bls. sulphate pulp.
On order, by same, 36 bls. paper.
Johansen, Wales & Sparre, Inc., Kentucky, Gothenburg, 875 bls. sulphite pulp.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 13, 1924

Franklin Paper Co., West Eldara, Antwerp, 75 bls. paper.
Franklin Paper Co., by same, 138 rolls, paper.
D. S. Walton & Co., Texas Maru, Hamburg, 70 rolls, wrapping paper.
A. W. Fenton, Inc., London Mariner, London, 216 bls. rags.
D. I. Murphy, West Eldara, Antwerp, 95 bls. rags.
G. M. Graves Co., by same, 25 bls. rags.
J. A. Steer, by same, 526 bls. rags.
J. A. Steer, by same, 48 bls. bagging.
E. J. Keller Co., Inc., by same, 196 bls. rags.
S. Birkenstein & Sons, by same, 157 bls. rags.
Katzenstein & Keene, Inc., by same, 92 bls. rags.
Penn Rag & Metal Co., by same, 116 bls. rags.
Castle & Overton, Inc., by same, 210 bls. rags.
Brown Bros. & Co., by same, 81 bls. rags.
Katzenstein & Keene, Inc., Cabo Villano, Marseilles, 111 bls. rags.
Katzenstein & Keene, Inc., Binnendyk, Rotterdam, 620 bls. rags.
Katzenstein & Keene, Inc., London Mariner, London, 306 bls. rags.
Katzenstein & Keene, Inc., Vincent, Dunkirk, 175 bls. rags.
Katzenstein & Keene, Inc., by same, Havre, 545 bls. rags.
Castle & Overton, Inc., Recca, Italy, 106 bls. rags.
Castle & Overton, Inc., Porta, Hamburg, 59 bls. rags.
E. J. Keller Co., Inc., Hektor, Marseilles, 172 bls. rags.
E. J. Keller Co., Inc., by same, Barcelona, 90 bls. rags.
E. J. Keller Co., Inc., Seattle Spirit, Stockholm, 89 bls rags.
Castle & Overton, Inc., Germany, 775 bls. woodpulp.
A. Jacob, Liberty, Havre, 93 bls. rags.
E. J. Keller Co., Inc., Sac City, Antwerp, 229 bls. rags.
E. J. Keller Co., Inc., Sac City, Rotterdam, 243 bls. wood pulp.
Nilsen, Lyon & Co., Inc., Nitedal, Sundsvaal, 2,000 bls. chemical pulp, 400 tons.
Bulkley, Dunton & Co., by same, 625 bls. chemical pulp, 125 tons.
A. F. Kelly & Co., by same, 1,800 bls. sulphite pulp, 300 tons.
M. Gottesman & Co., Inc., by same, 2,500 bls. sulphite pulp, 450 tons.
Scandinavian Pulp Agency, Inc., by same, 1,500 bls. sulphite pulp, 300 tons.
Hudson Trading Co., by same, 5,000 bls. sulphite pulp, 1,200 tons.

NEW ORLEANS IMPORTS

WEEK ENDING DECEMBER 13, 1924

Castle & Overton, Inc., Ostende, France, 777 bls. rags.
Castle & Overton, Inc., Kamesit, England, 361 bls. rags.

BIDS AND AWARDS FOR GOVERNMENT PAPER

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., Dec. 17.—The Government Printing Office has received the following bids for 23,100 pounds of 24 x 38—77 double coated book paper: Whitaker Paper Company 11.3 cents per pound; Mathers Lamm Paper Company 11.7 cents; Reese and Reese 9.34 cents; 10.55 cents, and 11.1 cents; Old Dominion Paper Company 10.29 cents; Maurice O'Meara Paper Company 11.75 cents; Bryant Paper Company 11 cents; Kalamazoo Paper Company, 8.75 cents; and Allied Paper Mills 9.2 cents.

The following bids were also received for 5,200 lbs. of 22 x 34—26 No. 13, blue sulphite writing paper. R. P. Andrews Paper Company 10 cents; Mathers Lamm Paper Company 9.25 cents and 9.3 cents; Reese & Reese 9.39 cents; Maurice O'Meara Company 9.6 cents; Old Dominion Paper Company, 9.99 cents; Import Paper Company 10 cents and American Writing Paper Company 10.5 cents.

The Printing Office received the following bids for 6,000 lbs. of sulphite manila paper in 11½-inch rolls and 19,700 lbs. of the same flat; American Writing Paper Company 7 cents and 7.5 cents; Whitaker Paper Company 5.31 cents and 5.87 cents; Mathers Lamm Paper Company 6.85 cents and 7.1 cents; R. P. Andrews Paper Company 7.2 cents; Republic Bag and Paper Company 5.89 cents; Reese & Reese 5.71 cents; Lindemeyr & Harker 6.8 cents and 7.2 cents; Old Dominion Paper Company 6.99 cents and 7.24 cents; Samuel S. Alcorn 8.5 cents.

The Government Printing Office has received the following bids for 35,700 pounds of 21 x 31—102 buff wood bristol board: American Writing Paper Company 7.75 cents per pound; Maurice O'Meara Company 5.4 cents; Reese & Reese 4.795 cents; Mathers Lamm Paper Company 5.25 cents; Old Dominion Paper Company 5.249 cents; Lindenmeyr and Harker 5.25 cents; Barton Duer & Koch Paper Company 4.83 cents; R. P. Andrews Paper Company 4.94 cents; Whitaker Paper Company 4.86 cents; Dobler and Mudge 5.2 cents; and Samuel S. Alcorn 5.25 cents.

The Printing Office has also received the following bids for 3,000 pounds of 22 x 28—196 orange railroad board; Old Dominion Paper Company $18.13 and $19.29 per ream; R. P. Andrews Paper Company $18.70; Whitaker Paper Company $18.45; R. A. Cauthorne Paper Company $19.56; Mathers Lamm Paper Company $19.50 and $17.44; Virginia Paper Company $20.58; Dobler & Mudge $19.60; Reese and Reese $19.38; Maurice O'Meara $20.19; Barton Duer & Koch $18.74; Lindemeyr & Harker $19.60; and Holyoke Card & Paper Company $17.50.

The Printing Office will receive bids on December 19 for 20,000 lbs. of wood manila paper in 27½-inch rolls. Bids will also be received on the same date for 18,885 lbs. of manila cardboard in various sizes.

The Government Printing Office will receive bids on December 19 for 40,000 pounds (24,000 sheets) of No. 2 quality, 25 x 30 No. 20 and No. 60 binders board.

The Government Printing Office will receive bids on December 22 for 38,500 pounds (500 reams) of 24 x 28—77 white laid antique book paper. Bids will be received on the same date for 6,600 pounds (200 reams) of 28 x 34—33 No. 13 white writing paper.

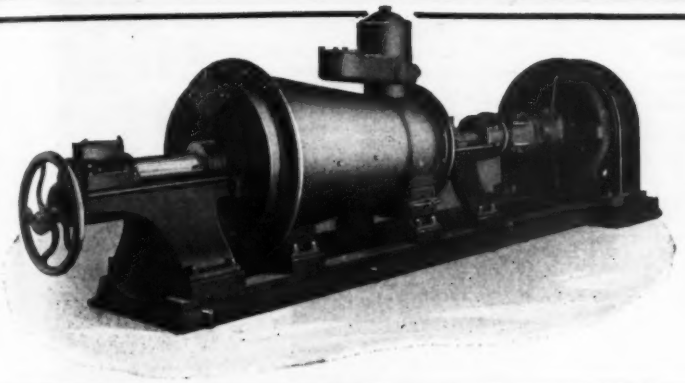
The Government Printing Office will receive bids on December 19 for 3,937 pounds, 125 reams, of 24 x 38—31½ No. 13 blue, glazed manifold bond paper.

The Aetna Paper Company has been awarded the Contract by the Bureau of Supplies and Accounts, Navy Department for furnishing the Brooklyn Navy Yard with 1,000 reams of 16 x 21-inch. white printing paper at $2,414, bids for which were received on November 25th.

Barton, Duer & Koch have been awarded the contract by the Government Printing Office for furnishing 29,975 pounds (250 reams) of various sizes white, lithograph map paper at 14.65 cents per pound, bids for which were received on December 3.

Reese & Reese will furnish 1,400 pounds of plate wiping paper in 4-inch and 8-inch rolls at 7.3 cents per pound. The Aetna Paper Company will furnish part of 33,050 pounds (400 reams) of various sizes white lithograph finish map paper at 16.97 cents per pound and Barton, Duer & Koch will furnish the remainder at 19.2 cents. The Mathers Lamm Paper Company will furnish 31,400 pounds (400 reams) of flat kraft wrapping paper and 18,000 pounds of the same in rolls at 5.38 cents per pound. Bids for these items were received on December 1.

The Whitaker Paper Company will furnish 36,000 pounds (21,600 sheets) of No. 2 quality, 25 x 30-inch No. 2 quality binders board at 3.143 cents per pound, bids for which were received on Nov. 28.



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Lawrence, Mass.

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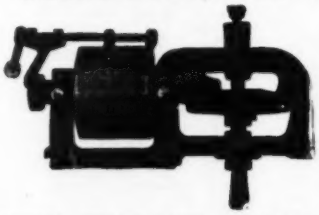

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THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

Market Quotations

PAPER AND PULP TRADE SECURITIES CLOSING PRICES TUESDAY, DEC. 9, 1924. Quoted by Hepburn & Co., No. 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Power and Paper, Montreal, Gen 6s 1940	98	100*
Advance Bag and Paper, 7s 1943	97	100*
Aroostook Pulp and Paper, 6s 1925	99	...
Bastrop Pulp and Paper, 7½s 1932	98	100*
Brompton Pulp and Paper, Montreal, 6s 1927	93	95
Beljo Canadian Paper, Montreal, 6s 1943	97	99
Bedford Pulp and Paper, 6½s 1942	96	...
Berkshire Hills Paper Co., 8s 1941	...	100
Beaver Board, N. Y. Curb, 8s 1933	87	89
Beaver Products Corp., 7½s 1942	102	104
Brown Paper Co., 8s 1931	102	105*
Berlin Mills, 5s 1931	96	99
Bryant Paper Co., 6s 1942	97	100
Brown Company Serial, 6s 1925-43	97	100
Central Paper, 6½s 1925-42	90	95
Cape Breton Pulp and Paper, 6s 1932	100	102
Carthage Sulphite Pulp and Paper, 8s 1941	40	50
Champion Coated Paper Co., Cincinnati, 6s 1924-34	...	102
Champion Fibre Co. Notes, Cincinnati, 8s 1930	102	...
Cherry River Paper, 5s 1929	97	100*
Chicoutimi Pulp Co., Montreal, 6s 1942	63	...
Donnaconna Paper Co., Ltd., 6s 1940	98	100
Eddy Paper, 7s 1931	96	...
Eagle Paper, 6½s 1932	96	100
Escanaba Paper, 6s 1933	84	88
Fox River Paper, 7s 1931	100	...
Fort Orange Paper Co, 7s 1942	90	...
Eddy Paper Co., 7½s 1931	95	98
Gair (Robert) Co., N. Y. Curb, 7s 1937	98	100
Gilbert Paper Co., 7s 1927	97	...
Gilbert Paper Co., 6½s 1923-29	100	102*
Hammermill Paper Co., 6s 1930-39	98	101
Hummell, Ross Film Corp., 7s 1925	90	...
Jessup & Moore Paper Co., 6s 1939	75	78
Kenmore Pulp and Paper Co., 6s 1937	89	91*
Lake Superior Pulp and Paper, 6s 1941	102	...
Mattagami Pulp and Paper 1st, Montreal, 6s, 1937	30	40
Marinette & Menominee, 7½s 1936	104	107
Mead Pulp and Paper, 7s 1925-29	96	99
Mengel Company, 7s 1934	100	103
National Paper and Type, 6s 1947	96	99*
Oswego Falls Corp., 8s 1942	101	...
Orono Pulp and Paper, 5s 1941	93	96*
Orono Pulp and Paper, 6s 1943	97	100*
Oxford Paper Co., 6s 1947	98	...
Paterson Parchment Paper, 5½s 1927-28	...	100
Paterson Parchment, 6s 1938	96	99
Parker, Young Co., 6½s 1944	92	96
Price Bros. & Co., Ltd., Montreal, 6s 1943	98	100
Provincial Paper Mills, Ltd., Montreal, 6s 1940	97	...
Riordan Co., Series A, Montreal, 8s 1940	90	93
Riordan Pulp and Paper, Ltd., Montreal, 6s 1929	24	28
River Raisin Paper, 8s 1936	102	105
St. Regis Paper, 6½s, 1929-35	97	102
Smith (Howard) Paper Mills, Montreal, 7s 1941	90	93
Smith (Howard) Paper Mills, Montreal, 6s 1934	93	...
St. Croix Paper, 5s 1923-37	95	...
Stevens & Thomson Paper, 6s 1942	86	90
Spanish River Pulp and Paper, Montreal, 6s 1931	105	...
Spanish River Pulp and Paper, Montreal, Gen 8s 1941	105	...
Ticonderoga Pulp and Paper Co., 6s, 1940	91	95
Whittaker Paper, Cincinnati, 7s 1942	96	99
Watab Paper Co., 6½s 1942	98	101
Waterway Paper Products, 7s 1924-27	95	100
Wayagamack Pulp and Paper, Ltd., Montreal, 6s 1951	84	88*

STOCKS	BID	ASKED
Abitibi Power and Paper, Com	62	63
Abitibi Power and Paper, Pfd	98½	103
Advance Bag and Paper, Com	8	12*
Advance Bag and Paper, Pfd	70	75*
Beaver Board, Com	5	8
Beaver Board, Pfd	38	42
Bryant Paper, Cap	9	...
Brompton Pulp and Paper, Cap	32	33
Crown Williamette, Com	93	98*
Crown Williamette, 7% A, Pfd	98	SW
Donnaconna Paper, Pfd	95	100
Great Northern Paper, Cap	220	250
Jessup & Moors Paper, Pfd	77	80
International Paper Co., Com	50	53
International Paper Co., Pfd	71	73
Laurentide Co., Ltd., Cap	82	84
Mengel Company, Com	31	33
Mengel Company, Pfd	72*	76
National Paper and Type, Com	70*	75
National Paper and Type, Pfd	85	90
Oxford Paper Co., Pfd	93	95
Provincial Paper Co., Com	90	100
Provincial Paper Co., Pfd	95	98
Price Brothers, Cap	36	38
St. Maurice Paper Co., Cap	83	88
St. Regis Paper Co., Cap	24	27
Smith (Howard) Paper Co., Ltd., Com	29	31
Smith (Howard) Paper Co., Ltd., Pfd	80*	84
Spanish River Pulp and Paper, Com	101	103
Spanish River Pulp and Paper, Pfd	111	113
Ticonderoga Pulp and Paper, Cap	145	...
Union Bag and Paper, Cap	48	50
United Paper Board, Cap	52	55*
West Virginia Pulp and Paper, Cap	54	57*
Whittaker Paper, Com	12	20
Whittaker Paper, Pfd	42	46
Zellerbach Paper, Pfd	98	100*

*Nominal.

Paper

F. o. b. Mill

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@30.00
Superfine	14.00	@30.00
Tub Sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.65	@ 3.90
Rolls, transit	3.75	@ 4.25
Sheets	4.15	@ 4.40
Side Runs	3.25	@ 4.00
Book, Cased—		
S. & S. C.	7.00	@ 9.75
M. F.	6.50	@ 8.75
Coated and Enamel	9.00	@15.00
Lithograph	9.00	@14.00
Tissues—		
White No. 1	.75	@ .90
White No. 2	.70	@ .80
Colored	.95	@ 1.90
Anti-Tarnish	1.40	@ 2.30
Kraft	1.00	@ 1.25
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	5.50	@ 6.25
No. 2 Domestic	5.00	@ 5.75
Imported	5.50	@ 5.75
Manila—		
No. 1 Jute	9.00	@
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.00
Fibre Papers—		
No. 1 Fibre	5.50	@ 6.00
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.50	@ 2.75
S. Screening	3.25	@ 3.75
Card Middler	4.00	@ 5.00
Boards—per ton—		
News	42.50	@45.00
Straw	50.00	@55.00
Chip	40.00	@42.50
Binders' Boards	75.00	@80.00
Sgl. Mla. Lt. Chip	55.00	@62.50
Wood Pulp	70.00	@75.00
Container	62.50	@67.50
Sulphate Screenings—		
Coarse	.80	@ .90
Refined	1.75	@ 2.00
Ground Wood—		
Screenings	20.00	@25.00
Glassine—		
Bleached, basis 25 lbs.	12.00	@15.00
Bleached, basis 20 lbs.	14.00	@17.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	35.00	@40.00

(F. o. b. Mill)

No. 1 Domestic	27.50	@34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.50
Easy Bleaching	2.90	@ 3.20
No. 1 strong unbleached	2.75	@ 3.25
No. 2 strong unbleached	2.50	@ 2.75
No. 1 Kraft	2.75	@ 3.00
Sulphate—		
Bleached	3.50	@ 3.65

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.45	@ 4.50
Easy Bleaching Sulphite	2.70	@ 3.25
News Sulphite	2.45	@ 2.75
Mitscherlich	3.20	@ 3.75
Kraft (Domestic)	2.70	@ 3.50
Soda Bleached	3.90	@ 4.10

Domestic Rags

New Rags

Prices to Mill, f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	15.00	@16.00
New White, No. 2	9.50	@11.00
Silesias No. 1	10.50	@11.50
New Unbleached	13.50	@14.50
Washables	6.50	@ 9.25
Fancy	10.00	@10.50
Blue Overall	10.50	@11.50
New Blue Prints	7.50	@ 8.50
New Soft Blacks	5.75	@ 6.20
Mixed Khaki Cuttings	5.50	@ 6.00
Pink Corset Cuttings	10.50	@11.00
Pink Muslin	10.25	@10.75
New Light Seconds	3.25	@ 3.50
O. D. Khaki Cuttings	6.00	@ 7.00
Men's Corduroy	6.00	@ 6.75
New Mixed Blacks	4.00	@ 5.00

Old Rags

White, No. 1—		
Repacked	8.00	@ 9.00
Miscellaneous	6.50	@ 7.00
White, No. 2—		
Repacked	4.75	@ 5.25
Miscellaneous	4.00	@ 4.50
St. Soiled, White	3.25	@ 3.75
Thirds and Blues—		
Repacked	4.25	@ 4.50
Miscellaneous	3.25	@ 3.50
Black Stockings	4.00	@ 4.50
Roofing Rags—		
Cloth Strippings	3.15	@ 3.25
No. 1	3.15	@ 3.25
No. 2	3.05	@ 3.15
No. 3	2.00	@ 2.25
No. 4	2.75	@ 2.85
No. 5A	1.80	@1.50

Foreign Rags

New Light Silesias	9.50	@10.50
Light Flannelettes	9.75	@10.50
Unbl'chd Cottons	13.00	@14.00
New White Cuttings	14.00	@15.00
New Light Oxfords	9.50	@10.25
New Light Prints	9.00	@10.00
New Mixed Cuttings	4.00	@ 4.50
New Dark Cuttings	3.75	@ 4.25
No. 1 White Linens	10.00	@11.00
No. 2 White Linens	7.00	@ 8.00
No. 3 White Linens	6.00	@ 6.50
No. 4 White Linens	4.50	@ 5.50
Old Extra Light Prints	4.50	@ 5.00
Ord. Light Prints	4.00	@ 4.50
Med. Light Prints	3.75	@ 4.25
Dutch Blue Cottons	4.50	@ 5.00
Ger. Blue Cottons	4.00	@ 4.25
Ger. Blue Linens	4.50	@ 5.00
Checks and Blues	3.50	@ 3.75
Linsay Garments	3.25	@ 3.50
Dark Cottons	3.15	@ 3.30
Shoppery	3.00	@ 3.10
French Blues	4.25	@ 4.75

Bagging

Prices to Mill F. o. b. N. Y.

Gunny No. 1—		
Foreign	3.15	@ 3.30
Domestic	3.25	@ 3.40
Wool, Tares, light	2.90	@ 3.00
Wool, Tares, heavy	3.00	@ 3.15
Bright Bagging	2.90	@ 3.05
Sound Bagging	2.40	@ 2.50
Manila Rope—		
Foreign	6.50	@ 6.75
Domestic	6.50	@ 7.00
New Bu. Cut	3.50	@ 4.00
Hessian Jute Threads—		
Foreign	4.00	@ 4.25
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.60	@ 3.90
Hard, White, No. 2	3.25	@ 3.50
Soft, White, No. 1	3.10	@ 3.25
Flat Stock—		
Stitchless	1.45	@ 1.55
Overissue Mag	1.45	@ 1.55
Solid Flat Book	1.40	@ 1.50
Crumpled No. 1	1.25	@ 1.35
Solid Book Ledger	1.80	@ 1.90
Ledger Stock	1.60	@ 1.70
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.45	@ 2.60
New Cut. No. 1	1.75	@ 2.00
Extra No. 1 old	1.40	@ 1.50
Print	1.20	@ 1.30
Container Board	1.00	@ 1.10
Bogus Wrapper	1.00	@ 1.10
Old Krafts Machine compressed bales	2.05	@ 2.15
News—		
No. 1 White News	1.85	@ 1.95
Strictly Overissue	1.05	@ 1.15
Strictly Folded	.95	@ 1.05
No. 1 Mixed Paper	.65	@ .75
Common Paper	.45	@ .55

Twines

Cotton—(F. o. b. Mill)—		
No. 1	.43	@ .48
No. 2	.41	@ .43
No. 3	.40	@ .42
India, No. 6 basis—		
Light	.19	@ .20
Dark	.17	@ .19
R. C., 18 basis	.39	@ .41
A. B. Italian, 18 Basis	.51	@ .61

Finished Jute—			
Dark, 18 basis	.30	@	.31
Light, 18 basis	.28	@	.30
Jute Wrapping, 3-6 Ply—			
No. 1	.20	@	.23
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger.	.15	@	.17
Fine Tube Yarn—			
5-ply and larger.	.20	@	.28
4-ply	.21	@	.24
3-ply	.22	@	.25
Unfinished India—			
Basis	.14	@	.15
Paper Makers' Twine			
Balls	.12	@	.13
Box Twine, 2-3 ply	.14	@	.15
Jute Rope	.20	@	.40
Amer. Hemp, 6	.30	@	.32
Sisal Hay Rope—			
No. 1 Basis	.14	@	.16
No. 2 Basis	.10	@	.12
Sisal Lath Yarn—			
No. 1	.14	@	.15
No. 2	.11	@	.13
Manila Rope	.18	@	.19

CHICAGO

Paper

F. o. b. Mill

All Rag Bond	35	@	40
No. 1 Rag Bond	25	@	35
No. 2 Rag Bond	14	@	25
Water Marked Sulphite	9	@	12
Sulphite Bond	7	@	10¼
Sulphite Ledger	9½	@	12
Superfine Writing	18	@	24
No. 1 Fine Writing	14	@	18
No. 2 Fine Writing	12	@	14
No. 3 Fine Writing	9	@	12
No. 1 M. F. Book	5½	@	7½
No. 1 S. & S. C. Book	6½	@	7¾
Coated Book	8	@	10
Coated Label	8	@	10
News—Rolls, mill	3¾	@	4½
News—Sheets, mill	4	@	4¾
No. 1 Manila	4½	@	5¾
No. 1 Fibre	4¾	@	5¾
No. 2 Manila	3½	@	4½
Butchers' Manila	3¾	@	4¾
No. 1 Kraft	5¼	@	6¼
No. 2 Kraft	4¾	@	5¾
Wood Tag Boards	4¼	@	6
Sulphite Screenings	2½	@	2¾
Manila Tissue, 24x36 sheet	7	@	7¼
White Tissue, 20x30 sheet	7	@	7¼
Boards, per ton—			
Plain Chip	47.50	@	50.00
Solid News	50.00	@	52.50
Manila Line Chip	52.50	@	55.00
Container Lined—			
85 Test	67.50	@	70.00
100 Test	72.50	@	75.00

Old Papers

F. o. b. Chicago

Shavings—			
No. 1 Hard White	3.40	@	3.55
White Envel. Cuttings	3.40	@	3.55
No. 1 Soft Shav.	3.05	@	3.10
No. 1 Mixed	1.85	@	1.90
No. 2 Mixed	1.65	@	1.70
Ledger and Writings	1.60	@	1.70
Solid Books	1.55	@	1.60
No. 1 Light Books	1.20	@	1.25
Blanks	2.10	@	2.15
Ex. No. 1 Manila	2.60	@	2.65
Manila Envelope Cuttings	2.75	@	—
Folded News (overissue)	1.00	@	1.05
Old Newspapers—			
No. 1	.90	@	.95
No. 2	.80	@	.82½
Mixed Papers—			
No. 1	.80	@	.85
No. 2	.80	@	.82½
Straw Clippings	.85	@	—
Binders' Clippings	.80	@	
Kraft	2.30	@	2.35
New Kraft Cuts	2.70	@	2.75
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	$50.00	@	—
No. 2	48.00	@	—
No. 3	46.00	@	—
No. 4	40.00	@	—

BOSTON

Paper

Ledgers—			
Sulphite	.08½	@	.18
Rag Content	.18	@	.36½
All Rag	.38	@	.50
Bonds—			
Sulphite	.07½	@	.14
Rag Content	.16	@	.33½
All Rag	.36½	@	.51
Writings	.08½	@	.20
Superfines	.20	@	.48
News	.04	@	.06½
Book, M. F.	.06½	@	.10¾
Book, Super	.07½	@	.11
Book, Coated	.09½	@	.20
Coated Litho.	.10	@	.15
Label	.09½	@	.15
Jute Manila No. 1	.12	@	.13
Manila, Sul. No. 1	.05	@	.06
Manila, Sul. No. 2	.03¾	@	.04¼
No. 1 Kraft	.06½	@	.06½
No. 2 Kraft	.05¾	@	.05½
Common Bogus	.03½	@	.04
Straw Board	50.00	@	55.00
News Board	45.00	@	47.50
Chip Board	42.50	@	45.00
Single Manila Pulp lined board	57.50	@	60.00
Single White, patent coated board	75.00	@	85.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	75.00	@	85.00
Tarred Felts—			
Regular	61.00	@	63.00
Slaters	66.00	@	68.00
Best Tarred, 1 Ply, roll	1.50	@	1.60
Best Tarred, 2 Ply, roll	1.70	@	1.80
Best Tarred, 3 Ply, roll	2.00	@	2.10

Old Papers

Shavings—			
No. 1 Hard White	4.00	@	4.25
White Blank News	1.75	@	2.00
Manila Env. Cuttings	2.80	@	3.00
No. 2 Hard White	3.25	@	3.50
No. 1 Soft White	3.10	@	3.25
No. 2 Soft White	2.25	@	2.50
No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock	2.00	@	2.25
Writing Paper	—	@	1.70
No. 1 Books, Heavy	1.60	@	1.80
No. 1 Books, Light	1.40	@	1.50
No. 1 New Manila	2.50	@	2.60
No. 1 Old Manila	1.75	@	2.00
Print Manila	1.05	@	1.20
Old Kraft	2.00	@	2.25
Overissue News	1.00	@	1.20
Old Newspapers	.90	@	1.00
No. 1 Mixed Paper	.60	@	.65
Box Board, Chip	.60	@	.65

Bagging

Price f. o. b. Boston

Gunny No. 1—			
Foreign	1.12½	@	2.00
Domestic	2.00	@	2.12½
Manila Rope	6.00	@	6.50
Mixed Rope	1.50	@	1.62½
Scrap Burlaps	1.25	@	1.50
Wool Tares, heavy	2.00	@	2.13
Mixed Strings	1.50	@	1.62½
New Burlap Cuttings	2.00	@	2.25

Domestic Rags (New)

Price f. o. b. Boston

Shirt Cuttings—			
New White No. 1	.13½	@	.14
Silesias, No. 1	.09	@	.09½
New Unbleached	.12½	@	.13
Washable	.06	@	.06½
Fancy	.07	@	.07¼
Cottons — according to grades, Blue Overall	.09½	@	.10
New Blue	.05½	@	.06
New Black, soft	.06	@	.06¼
Khaki Cuttings	.05½	@	.06
Corduroy	.04	@	.04½
New Canvas	.10¼	@	.11

Domestic Rags (Old)

Price f. o. b. Boston

White No. 1—			
Repacked	7.50	@	8.00
Miscellaneous	6.50	@	7.00
White No. 2—			
Repacked	5.50	@	6.00
Miscellaneous	4.75	@	5.50
Thirds and Blues—			
Repacked	3.75	@	4.00
Miscellaneous	3.00	@	3.25
Roofing Stock—			
No. 1	2.25	@	2.37
No. 2	2.12½	@	2.25
No. 3	1.50	@	1.75
No. 4	1.15	@	1.20

PHILADELPHIA

Paper

Bonds	.09	@	.53
Ledgers	.13½	@	.40
Writings—			
Superfine	.13½	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.08	@	.11
Book, S. S. & C.	.09¼	@	.12½
Book, Coated	.11½	@	.20
Coated Lithograph	.10	@	.13
Label	.10	@	.13
News	.04¼	@	.05
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.07	@	.10
Manila No. 2	.06	@	.08
No. 2 Kraft	.05	@	.08
No. 1 Kraft	.07	@	.08
Common Bogus	.03½	@	.04
Straw Board	55.00	@	60.00
News Board	42.50	@	—
Chip Board	40.00	@	42.50
Wood Pulp Board	2.75	@	3.00
(Carload Lots)			
Binder Boards—			
Per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	61.00	@	63.00
Slaters	66.00	@	68.00
Best Tarred, 1-ply (per roll)	1.70	@	1.80
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.10

Bagging

F. o. b. Phila.

Gunny, No. 1—			
Foreign	1.75	@	1.85
Domestic	1.60	@	1.70
Manila Rope	5.00	@	5.50
Sisal Rope	2.50	@	—
Mixed Rope	1.25	@	—
Scrap Burlaps	1.15	@	1.20
Wool Tares, heavy	2.00	@	2.13
Mixed Strings	1.00	@	—
No. 1, New Lt. Burlap	3.50	@	3.75
New Burlap Cuttings	3.75	@	—

Old Papers

F. o. b. Phila.

Shavings—			
No. 1 Hard White	3.75	@	3.80
No. 2 Hard White	3.25	@	3.40
No. 1 Soft White	2.75	@	3.00
No. 2 Soft White	2.00	@	2.25
No. 1 Mixed	2.00	@	—
No. 2 Mixed	1.25	@	1.30
Solid Ledger Stock	1.75	@	1.90
Writing Paper	1.50	@	1.75
No. 1 Books, heavy	1.45	@	1.60
No. 2 Books, light	1.15	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.75
Container Manila	1.10	@	1.15
Old Kraft	2.00	@	2.25
Overissue News	1.05	@	1.10
Old Newspaper	.65	@	.70
No. 1 Mixed Paper	.75	@	.80
Common Paper	.60	@	.70
Straw Board, Chip	.65	@	.70
Binders Bd., Chip	.65	@	.70

Domestic Rags—New.

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.13	@	.14
New White, No. 2	.07	@	—
Silesias, No. 1	.08	@	.08¾
New Unbleached	.11¼	@	.11½
Washable	.05½	@	.05¾
Fancy	.07	@	.07¼
Cottons—according to grades—			
Blue Overall	.08¾	@	.09
New Blue	.03¾	@	—
New Black Soft	.06	@	.06¼
New Light Seconds	.03½	@	.03¾
Khaki Cuttings	.05½	@	.06
Corduroy	.04	@	.04½
New Canvas	.09	@	.09½
New Black Mixed	.05	@	.05¼

Old

White, No. 1—			
Repacked	6.75	@	7.00
Miscellaneous	6.25	@	6.50
White, No. 2—			
Repacked	.05	@	.05¼
Miscellaneous	.04¼	@	.05⅛
Thirds and Blues—			
Repacked	3.40	@	3.60
Miscellaneous	3.15	@	3.25
Black Stockings	4.00	@	4.25
Roofing Stock—			
No. 1	2.30	@	2.40
No. 2	2.20	@	2.30
No. 3	1.25	@	1.35
No. 4	2.10	@	2.20
No. 5A	1.40	@	—
B	1.25		nominal
C	1.15		nominal

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark tinted	.13½	@	.15
Ledgers (sulphite)	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)	3.65	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.25	@	—
No. 2 M. F. (carloads)	8.25	@	—
No. 3 M. F. (carloads)	7.75	@	—
No. 1 S. C. (carloads)	9.75	@	—
No. 2 S. C. (carloads)	8.75	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rap	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	30.00	@	32.00
Sulphite easy bleaching	60.00	@	65.00
Sulphite news grade	50.00	@	55.00
Sulphite, bleached	80.00	@	—
Sulphate	65.00	@	70.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut.	3.60	@	—
Soft White Book shavings	3.00	@	—
White Blk. News	1.80	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.50	@	—
Light and Crumpled Book Stock	1.35	@	—
Ledgers and Writings	1.75	@	—
Solid Ledgers	1.75	@	—
Manilas—			
New Manila Cut.	—	@	1.60
Printed Manilas	1.20	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News	.90	@	—
No. 1 Mixed Papers	.70	@	—

Domestic Rags—

Price to mills, f. o. b. Toronto

	Per lb.		
No. 1 White shirt cuttings	.15	@	.15¼
No. 2 White shirt cuttings	.07½	@	.08
Fancy shirt cuttings	.09	@	.09½
No. 1 Old Whites	—	@	—
Third and blues	.05½	@	.05¼

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, December 17, 1924.

In every branch of the paper business the holidays have been reflected during the past week. Either the holidays have helped or hurt and the approach of Christmas and New Year's has been the ruling factor in the market. All the grades of paper which are naturally influenced for the better at this period of the year are showing material improvement but few of the grades outside of that have really succeeded in holding their own during the past week. That does not mean that there has been any material falling off in demand but that many lines are now failing to show the improvement which they had apparently got well started on. Prices are holding firm, however, and little change can be looked for either in price or demand during the remaining two weeks of the year.

News is enjoying a spirited demand. Probably never before has there been such a bulk of Christmas advertising. Everybody advertises at this time of the year and annually the big advertisers are increasing their space. Here in New York city the newspapers are publishing bulky editions and are eating up news print in unprecedented quantities. That is equally true in all the big cities and the papers and advertisers in the smaller cities are rapidly developing the metropolitan idea. That alone explains why the December consumption of news print is bound to be considerably above normal.

Fine papers, wrapping papers and board are also enjoying their share of holiday prosperity but otherwise the paper demand for the past week has been a trifle under that of the previous week.

Mechanical Pulp

While there has been no change during the past week in ground wood prices, those prices are unusually firm and there is every indication that there will be an advance within a short time. Demand is very satisfactory at this writing and some of the manufacturers are said to be buying in more than normal quantities. There is more buying looking to the future and good business from now on is confidently anticipated.

Chemical Pulp

The demand for chemical pulp is fair. While some of the manufacturers are unbelting a little and buying for the future, most of the buying continues to be confined to buying in regular contract quantities. Buyers seem more inclined to anticipate their future needs when it comes to the consideration of foreign pulp than they do in the case of domestic pulp. Prices are firm, Kraft apparently stiffening in price and the general tendency being upward.

Old Rope and Bagging

Old bagging is now in excellent demand and there is no great supply in the market. The prices are holding firm and there is a positive shortage on some of the grades. The demand for old rope is not so good and prices are standing where they were a week ago.

Rags

The rag market which has been doing exceptionally well, sagged a trifle during the past week. Most of the dealers have plenty of orders to fill, however, and were glad of an opportunity to catch up a little after the lively period they have just experienced. The demand for foreign rags has slowed down. Prices abroad are holding strong it is reported and dealers here are unable to offer anything in the way of concessions.

Waste Paper

Waste papers are doing well although the mills are buying sparingly, their orders being for the most part only to meet immediate needs. The business, however, is near normal and the present prices are sustained.

Twine

Twines are experiencing a genuine improvement just now and it is a pleasant change for the twine men who for many weeks were obliged to plod along with the market about as near flat as it could be without actually being lifeless. A slight improvement came about a month ago and this has steadily grown better until at the present time the business is the best that it has been for a long period. Much of the credit for this may be given to the holiday twine demand but even that cannot detract from the fact that the twine market is improving. Prices are firm but they have not yet been readjusted to the figures which the twine men were on the edge of putting into effect early in the Fall. The outlook is now very encouraging for the first of the year and it is likely that new prices may be quoted about January 1.

Bird & Son Make Record Chip Board Production

[FROM OUR REGULAR CORRESPONDENT.]

EAST WALPOLE, Mass., December 15, 1924.—What is believed to be a new world's record in the production of chip board on a single paper machine was established December 5 at the Bird & Son plant here.

The combined efforts of machine tenders John J. Linnehan, James J. Geary and William H. Boyden Jr., resulted in the production in one day on one machine of 102 1-5 tons of chip board.

Regarding this record production George R. Wyman, general manufacturing manager of Bird & Son says:

"These men were not trying for a record, but were trying to eliminate lost time caused either by breakdown or reduction of speed below standard.

"The board was plain chip, .025 inches thick, 48 pounds per 500 sq. ft., 111 inches trim. We have 93 driers on this machine, 48 inches in diameter. In talking with some of our friends, we have had the idea that a ton to a drier, under our conditions, would be a reasonable standard for production.

"We have never heard of an output higher than was produced on this machine on the day mentioned, and, as far as we know, it is the world's record."

Champion Fibre Co. Expansion

[FROM OUR REGULAR CORRESPONDENT.]

CANTON, N. C., December 15, 1924.—Work started December 9 on an addition to the digester building of the Champion Fibre Company at this place. This is the latest item in a broad program of expansion started by the company nearly a year ago and which, when completed, will involve the expenditure of more than a million dollars.

The machine room expansion was completed only a few days ago, the company having started running paper through the new machine on November 26. Construction of a large addition to the finishing room is, also, nearing completion.

Construction is being carried out by the Aberthaw Company, of Boston.

Import Committee Opens Offices

[FROM OUR REGULAR CORRESPONDENT.]

The Import Committee of the American Paper Industry has opened offices in Room 1405, at 18 East 41st street, part of the quarters formerly occupied by the Writing Paper Manufacturers Association, before that association transferred its headquarters to Springfield, Mass. The Import Committee, of which Henry A. Wise is counsel and Warren B. Bullock manager, has many cases of misclassification and other violations of the customs laws under consideration by government authorities.

The committee will have a meeting during the present month at which some definite plans for work during the coming year will be decided upon.

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Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, Dec. 17, 1924.

Somewhat of an improvement characterized the chemical market during the past week, the alkalis perhaps being the most notable instance of the betterment. The present indications are that the market will round out the year in exceptionally good shape and in far better conditions than could have been anticipated a month ago. The period between now and the first of the year is too short, however, to enable the dealers to make up the ground that was lost during the season when the demand lagged so persistently. Buyers have loosened up considerably and are making contracts further ahead than they have been doing. Practically the entire year has been one of hand to mouth buying and this should help the market to get under way for 1925 at an unusually lively pace. At any rate the chemical men are more optimistic than they have been for a long time and apparently the horizon is very bright for them.

BLANC FIXE.—Inquiries are coming in all the time regarding blanc fixe but somehow actual business finds it hard to get under headway. The increasing number of inquiries, however, is proof that interest is becoming keen and that a deluge of business is almost certain to be unloosed on the market before long. In the meanwhile blanc fixe is quoted at from $75 to $80 a ton for the powder and from $50 to $55 for the pulp.

BLEACHING POWDER.—Many contracts for bleaching powder are now being placed and yet there continue to be many holdovers, a considerable number of buyers figuring on buying on the spot market sooner than pay the present price just now. They figure that they have nothing to lose by waiting and therefore they are doing exactly that. The quotation is now from 1.90 to 2.15 cents a pound.

CAUSTIC SODA.—Caustic soda is one of the items on which more contracts looking far ahead are being placed at this time. The new price schedule has stimulated matters and the manufacturers are little short of elated at the manner in which things are shaping up. The future looks particularly bright to them. The price is from 3.10 to 3.15 cents a pound.

CASEIN.—Casein is doing very nicely just now although it is not in the way of making any record for itself. After January 1 it is expected to swing forward at a beter stride. It is quoted at from 10 to 11 cents a pound.

CHINA CLAY.—More China clay business is being booked now than for some weeks and a general beterment is looked for from now on. It is still quoted at from $16 to $20 a ton for the imported grades and from $12 to $15 a ton for the domestic grades.

CHLORINE.—Chlorine was one of the commodities which failed to keep up with the procession during the week. Contracts are not coming in as heavily as they have been doing and, in fact, the present demand is not up to the mark that had been anticipated. The price continues from 4.50 to 7.00 cents a pound in tanks.

ROSIN.—There is nothing new to be said in regard to rosin. An even demand for it is being maintained and the price ranges from $6 to $6.25.

SALT CAKE.—Salt cake is being taken up in the regular way but it is slow about gaining ground. Inquiries regarding it, however, are better which indicates that there may be something doing for it before long. The price is from $17 to $20 a ton.

SODA ASH.—Orders are coming in very nicely for soda ash. More contracts are being renewed at the new schedule which was recently announced and buying for the future is more general. The price is 1.38 cents a pound on a flat basis at the works.

SULPHATE OF ALUMINA.—The demand for sulphate of alumina is very good just now and is constantly getting better. The manufacturers are adhering strictly to their schedule but contracts are being placed freely and in good volume. The present price is from 1.40 to 1.45 cents a pound for the commercial grade at the Eastern works and from 2.20 to 2.35 cents a pound for the iron free.

SULPHUR.—The demand for sulphur remains consistent, the buyers taking out their contract amounts regularly. The price holds at from $18 to $19 a ton.

TALC.—Talc is doing a little better now. There were weeks during which there was little or no inquiry regarding talc but more orders are coming in now and the increased number of inquiries shows that an increased volume of buying may reasonably be expected at an early date. Talc is quoted at from $16 to $17 a ton.

Frank Mudge Dies

[FROM OUR REGULAR CORRESPONDENT.]

BALTIMORE, Md., December 14, 1924.—Frank Mudge, treasurer and credit manager of the firm of Dobler & Mudge, wholesale paper dealers, 113 Hopkins place, died Thursday, December 11, at his home, 211 West Lanvale street, from pneumonia.

Mr. Mudge, who was 66 years old, began his business career as a member of the firm of Mudge, Smith & Co., at Spear's Wharf, Baltimore. Severing this connection about 30 years ago he entered the paper business with the firm of Dobler, Mudge & Chapman, which had been developed from the original firm of Wheelwright & Mudge that firm having been in business in Baltimore for more than 100 years. In the present firm of Dobler & Mudge he was associated with his brother, E. T. Mudge, and a nephew, Arthur P. Mudge.

For many years Mr. Mudge had been treasurer and an active worker in the First Unitarian Church, Baltimore. He also took an active interest in civic affairs, particularly the Baltimore Association of Commerce, which until recently was known as the Merchants' and Manufacturers' Association of Baltimore.

Funeral services were held Saturday, December 13, at the First Unitarian Church. Burial was in Greenmount Cemetery.

Besides his widow, Mrs. Margaret L. Mudge, Mr. Mudge is survived by two sons, Louis G. Mudge and E. Tileston Mudge, 2nd., and two daughters, Mrs. G. P. Dean and Mrs. Evan Rinehart.

To Distribute Central Paper Co.'s Line on Coast

[FROM OUR REGULAR CORRESPONDENT.]

MENASHA, Wis., December 15, 1924.—The Zellerbach Paper Company has recently become Pacific Coast distributor for Central Paper Company's line of adding machine paper. This line consists of the well known Qualified, Accurate and Goldnote grades made by us at Menasha, Wis.

The paper will be sold through Zellerbach Houses at San Francisco, Oakland, Fresno, Sacramento, Los Angeles and San Diego, California; Portland, Oregon; Seattle and Spokane, Washington; Salt Lake City, Utah. Stationers on the Pacific Coast can obtain samples and prices by writing to the nearest division of the Zellerbach Paper Company.

American Multi-Tone Papers to Start

[FROM OUR REGULAR CORRESPONDENT.]

COHOES, N. Y., December 12, 1924.—A new corporation the American Multi-Tone Papers, Inc., has leased one floor of the Ogden mill building and will occupy the premises December 15. This concern has been capitalized at $250,000 and will produce a new kind of paper under a patented process, using as a base the paper made by the Mohawk Papermakers, Inc., at their factory on South Saratoga street.

The American Multi-Tone Company will absorb the Waterford Art Papers, Inc., which has been conducting experimental operations for about a year in the McDowell mill on the east side.